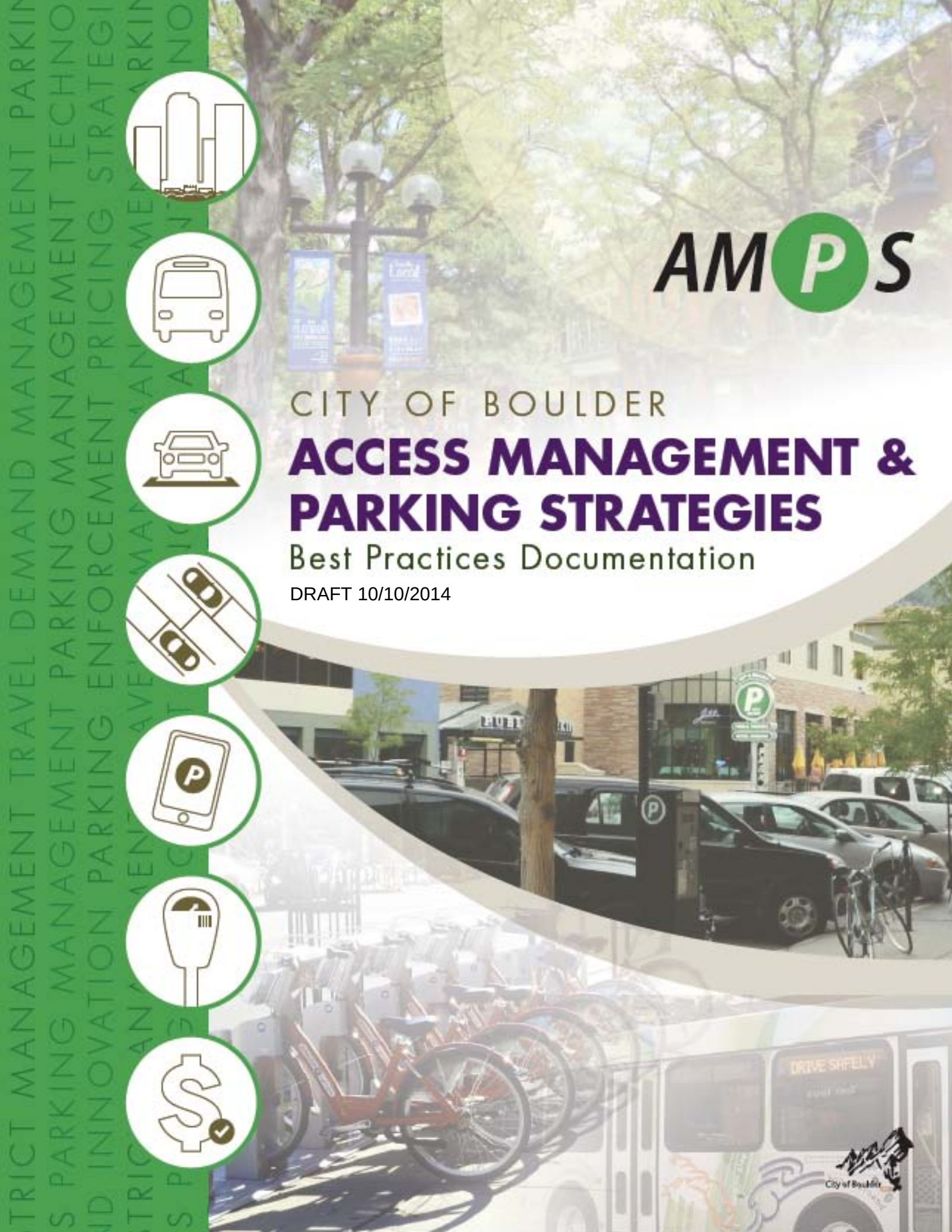

AMPS
CITY OF BOULDER
ACCESS MANAGEMENT & PARKING STRATEGIES
Best Practices Documentation
DRAFT 10/10/2014

Boulder Access Management and Parking Strategies

Project Overview and Best Practices Research

Introduction to AMPS

Access Management and Parking Strategy

WHAT IS AMPS?

The Access Management and Parking Strategy (AMPS) will update current access and parking management policies and programs and develop a new, citywide strategy to align with city's sustainability goals.

The City of Boulder's parking management system has a long history. Parking meters were first installed on Pearl Street in 1946. Over the past decades, Boulder's parking system has evolved into a nationally recognized, district-based, multi-modal access system (autos, transit, bicycling and pedestrians) along with parking in order to meet city goals, support the viability of the city's historic commercial centers and maintain the livability of its neighborhoods.

The goal of AMPS is to evolve and continuously improve Boulder's citywide access and parking management strategies and programs tailored to address the unique character and needs of the different parts of the city.

WHAT ARE THE ISSUES?

Although the city of Boulder is a national leader when it comes to parking and access management, more work is needed to create a state of the art system that addresses new challenges:

- Boulder has one of the highest bike and transit use rates in the country, but more work is needed to meet our sustainability objectives and climate commitments
- Current regulations are out of date with respect to how much parking should be provided on certain sites considering the growing shift in travel behavior (more bike, transit and walking trips)
- While managing transportation demand has proven effective for private development, the city lacks the ability to enforce requirements
- The trend in lower car ownership among younger generations is causing the city to rethink future access and parking needs
- The need to create a parking and multimodal access system that works in both north Boulder and south Boulder
- Providing parking and multimodal access that works well for older adults, millennials, and everyone in between

WHAT IS THE GOAL OF AMPS?

Goal

Develop tools and strategies to evolve Boulder's access and parking management to a state of the art system reflecting the city's sustainability goals.

Another key goal of the AMPS project is to align parking and access management philosophies and programs with larger Citywide policies, goals and adopted plans.

Guiding Principles

The following AMPS project "Guiding Principles" provides a set of criteria that will be used to both guide the project in terms of overarching goals as well as to assess the relevance and appropriateness of specific best practices that will be evaluated and refined as tools to advance the City of Boulder's parking and access management programs.

- **Provide for All Transportation Modes and Safety**: Support a balance of all modes of access for a safe transportation system: pedestrian, bicycle, transit, and multiple forms of motorized vehicles—with the pedestrian at the center.
- **Customize Tools by Area:** Use of a toolbox with a variety of programs, policies, and initiatives customized for the unique needs and character of the city's diverse neighborhoods both residential and commercial.
- **Support a Diversity of People:** Address the transportation needs of different people at all ages and stages of life and with different levels of mobility – residents, employees, employers, seniors, business owners, students and visitors.
- **Seek Solutions with Co-Benefits:** Find common ground and seek mutually supportive outcomes among community character, economic vitality, and community well-being with elegant solutions—those that achieve multiple objectives and have co-benefits.
- **Plan for the Present and Future:** While focusing on today's needs, develop solutions that address future demographic, economic, travel, and community design needs. Align with the city's Master Plans, including the updated Transportation Master Plan, as well as the city's Climate Commitment and Sustainability Framework.
- **Cultivate Partnerships:** Be open to collaboration and public and private partnerships to achieve desired outcomes.

WHAT IS THE FOCUS OF THE AMPS PROJECT?

To address the above challenges, AMPS will focus on the following seven "Focus Areas". Each focus area below is followed by a list of key topics to be explored within the focus areas. Some focus area tasks have some overlap with related areas. A more detailed description of these key topics or issues is provided in Appendix A.

1. **District Management**
   - A. This focus area explores the future of existing access and parking districts (downtown, Boulder Junction, University Hill) as well as considering the formation of new districts.
   - B. Key Topics/Issues:
     - Partnerships with private parking providers
     - Integration Between Districts
     - IPI's Parking Program Accreditation Initiative and the Green Parking Council's Garage Certification Program
     - Consideration of how access districts could evolve to integrate with other types of districts: Eco Districts, Arts, Innovation etc.
     - District Development Projections
     - Parking/Access Demand Planning Software
     - Creation of New Districts
     - Car Share/Pool/Electric Charging Strategies to Support Access Districts
     - Public Private Partnerships
2. **On and Off-Street Parking**
   - A. Investigates uses of public rights-of-way (e.g. Car-share parking, E-vehicle parking, neighborhood permit parking and the repurposing of parking spaces for uses such as bike parking or "Parklets"). Off-street parking (all surface lots and parking garages that are owned and managed by the districts) is also part of the discussion.
   - B. Key Topics/Issues: - On-Street Parking
     - 72 Hour Parking Limitation
     - Back-In Angled Parking to Facilitate Bike Traffic
     - Protected Bike Lanes, Swapping Bike Land with Parking Areas
     - Loading Zone Management
     - Disabled Parking Designation and Location
     - Use of Time Zones as a Management Tool
     - Neighborhood Parking Permit Programs (NPP)
     - On-Street Car Share
     - Edge Parking
     - City Employee Parking
     - Parklets
   - C. Key Topics/Issues: - Off-Street Parking
     - Variable Messaging Signage / Parking Guidance Systems
     - Replacement of the Parking Access and Revenue Control (Gate Access System) in the Public Garages
     - Incorporation of Public Art

- Electric Vehicle Charging Stations

3. **Transportation Demand Management (TDM)**

   A. Explores existing programs that reduce single occupant vehicle trips, including travel by transit, bikes, walking and car and van pool programs and new practices that could be adopted in Boulder.

   B. Key Topics/Issues:

   - Impact of RTD Smart Card on Pricing
   - Last Mile Options – Car and Bike Share
   - Multi-modal Access Card for Transit, Parking and Share Programs
   - Enhanced Pedestrian Amenities
   - Expanded Bike Parking Options
   - Bike Corrals
   - Implementation of Boulder Junction Access District (BJAD) TDM District
   - Community-Wide EcoPass
   - Parking Cash Out
   - Alternative Work Schedules
   - Car Pools/Van Pools

4. **Technology and Innovation**

   A. Assesses parking access equipment (garages) for both internal systems (permitting, products, and reporting) and customer-focused technology to make parking more convenient and reduces the time needed to park.

   B. Key Topics/Issues:

   - Integration of Existing Five Technology Systems
   - Consideration of New Technologies

5. **Code Requirements**

   A. Identifies code improvements for parking requirements citywide (e.g. updating parking requirements for specific uses and updating the code to meet ADA requirements). Longer term code changes will respond to recent changes in travel behavior (e.g. increased bicycling and transit use) with new polices related to shared and unbundled parking.

   B. Key Topics/Issues:

   - Update off-street parking standards for standard, small car, and accessible parking stalls to create less complicated parking requirements that meet, but do not exceed, the parking needs of restaurants/taverns, warehouses, and industrial uses . Also, update RH-1 parking requirements to match that of RH-2 zoning districts.
   - Assess whether private property parking requirements should be by use instead of zone district.
   - Consider automatic parking reductions in addition or in lieu of current parking reduction process.
   - Consider Parking Maximums
   - Bike Parking Standards for New Development
   - Reassess compact parking requirements and consider whether tandem spaces should count as parking in certain scenarios.

- Allow Parking Spaces for Car Share/Pool/Electric to be Included in Parking Totals.
- Create Regulations for Shared Parking with Cross Access Between or Within Development Sites.
- Create Area Specific Requirements (not just zoning specific)(i.e. Student residential areas east of 28th)
- Assess other strategies to reduce superfluous parking supply or potentially not require minimum amount of parking on site, including but not limited to unbundling parking and additional on-street permit or metered parking.

6. **Enforcement**

A. Balances parking access and management through education, customer service and regulation in an effort to better serve those who live, work and visit the City of Boulder.
B. Key Topics/Issues:

- Title 9 Parking Enforcement Responsibility
- Expansion of LPR Enforcement
- Parking Ticket Fine Amounts in Relation to Parking Pricing
- Explore Graduated Parking Fines
- Develop an enhanced Parking Enforcement Operations and Training Manual
- Develop a parking enforcement program audit process

7. **Parking Pricing**

A. Analyzes parking pricing and enforcement fees (including variable and performance based pricing and graduated fines).
B. Key Topics/Issues:

- Parking Management through Pricing
- Pricing Considerations
- Cost of NPP Permits
- Variable or Performance-Based Pricing Options
- Parking Fine Amounts

Project Progress Summary

Overall Project Goals

The City of Boulder (City) has contracted with Kimley-Horn and Associates, Inc. (Kimley-Horn) and their sub-consultant partners, to assist in developing an integrated Access Management and Parking Strategy (AMPS).

To accomplish this goal, the City and Kimley-Horn team will complete a multi – phased approach.

- Phase One will complete specific early action items, conduct best practice research activities to complete scoping in other technical areas, initiate a public process, and develop an overall framework to provide an integrated final deliverable.
- To meet City needs in synchronizing deliverables with other planning and approval processes, early action items will complete specific tasks and deliverables. This Phase will also include best practice research tasks in areas where the final scope of strategy development is dependent upon the identification of best practices. Based on the research and deliverables completed in this phase, the scope of phase two will be more clearly defined.
- Phase Two will initiate as the scoping aspects of Phase One are completed and more detailed scopes of work developed by Focus areas. Phase Two will generally focus on policy development and implementation strategies.

City staff has done a tremendous amount of advance work to aid in the development of a comprehensive and integrated approach format to better define the scope and goals of this project. This work includes the development of a set of project "guiding principles", a project format based on seven key "focus areas", detailed matrices by focus area defining key programs/policies, task descriptions, issues, priorities, etc.

Editorial Note:

Based on staff review comments, additional work is proceeding to better document program results and performance metrics. Many good examples have been found and will be incorporated into the final report. The development of specific performance measures and success metrics will be developed for each strategy that the City prioritizes as part of Phase Two of the project.

The diagram below summarizes the overall project approach:

These objectives are completed through the following work plan. The work plan is organized by the eight Focus areas (seven AMPS focus areas plus a focus area related to communications and plan integration).

While the project is still in its early phases, several priority areas have been addressed, including:

1. Develop TDM Toolkit

One of the early priorities of the AMPS project was the task of exploring opportunities to improve the city's existing Developer TDM Toolkit, which encourages developers to implement TDM programs. Currently, developer participation in TDM can be either voluntary or mandatory, leading to some inconsistencies. Additionally, the current TDM toolkit allows developers to select TDM strategies from a list of options. It has been found that the combination of strategies selected by developers is often not ideal for maximizing synergies among strategies and reducing vehicle trips. Other issues associated with the toolkit include:

- How to provide long-term funding for the implementation of TDM strategies
- Identification of an ideal time period for which developers should be required to implement and fund TDM strategies
- How to address changes in property ownership, if at all
- Identification of new options for the implementation of developer-based TDM programs, such as the utilization of TMAs
- Identification of new TDM strategies that should be added to the toolkit, such as bike share and car share
- How requirements should vary by development type and location, if at all
- How best to enforce compliance with TDM requirements
- How best to measure the anticipated trip reduction impacts associated with TDM strategies and requirements

Based on initial research, staff would like to pursue a policy in which a number of TDM "packages" are created. Each package would contain a specific set of TDM strategies that are selected based on their ability to work effectively together and generate significant vehicle trip reductions. Developers would be able to select a package from various options. The available packages from which developers would choose could vary based on location, land uses, and other characteristics. Staff would like to move forward with the identification of improvements to the TDM Toolkit with this concept serving as the basis for future changes.

<u>TDM Best Practices Research</u>

Best practices research was conducted for three primary subject areas: (1) opportunities to create sustainable funding sources for the implementation of TDM; (2) current best practices for the integration of TDM requirements into the development review process; and (3) best practices for encouraging and/or requiring developers to include bike share and car share spaces at new developments.

A major component of the research for this task will be the collection of best practices information from communities that have implemented successful development-based TDM requirements. Key research areas included:

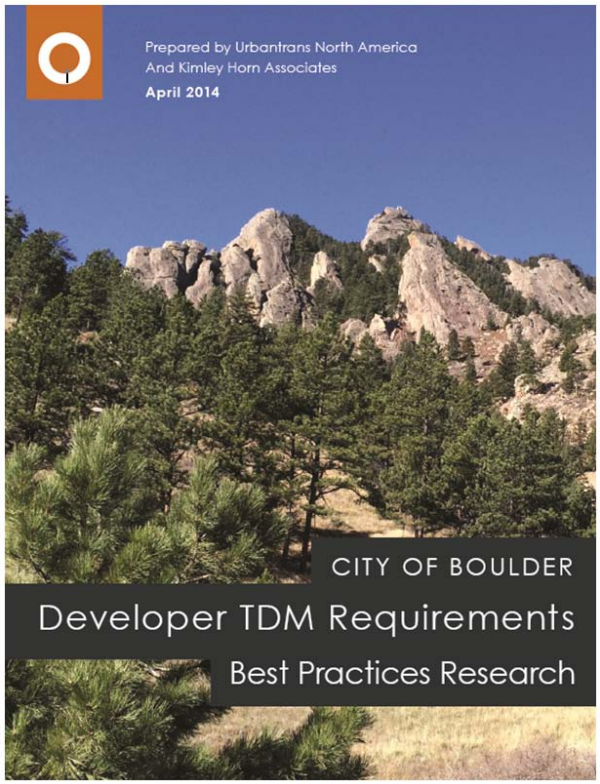
- The processes communities use to develop TDM plans
- What TDM and parking strategies they require
- What triggers TDM requirements, how TM program funding is guaranteed
- Internal staffing costs
- Enforcement policies

- Incentives to encourage developer participation
- Processes for benefit estimation
- Inclusion of bike share and car share requirements
- Use and/or funding of transportation management associations to meet TDM requirements
- Zoning regulations and language
- Lessons learned

A special focus is being placed on the identification of "documented results" (although we have been disappointed to find a general lack of results documentation primarily due to resource limitations within TDM programs overall). However, despite the general scarcity of data related to program results measurement, recent research has turned up some promising leads. This research will be directed toward the development of Boulder specific defined program metrics geared toward documenting overall program success in a number of key areas.

TDM Toolkit Modification and Design

Upon conclusion of the best practices research, staff and our consultant team will work to review and modify the existing TDM Toolkit. The effort will start with a review of current issues that limit the toolkit's effectiveness.



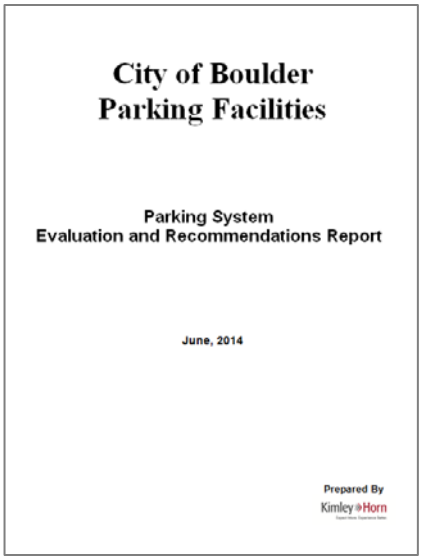
Information gathered in the best practices research will be used to identify new tools and strategies that can be used to improve the effectiveness of the toolkit. Additional research is being conducted (as part of this larger best practices research and the two research efforts will be merged as we focus on maximizing the benefits associated with TDM in the City of Boulder.

Draft recommendations will be reviewed through the public outreach process. Feedback obtained from that process will be used to update and improve the draft recommendations. Final recommendations will include estimates of developer costs and the staffing levels required to comply with the adjusted toolkit along with estimates of the toolkit's impacts on vehicle trip generation and the community cost savings associated with anticipated vehicle trip reductions. Ultimately, both research efforts will be merged into a single report.

2. Replacement of the Parking Access and Revenue Control (Gate Access System) in the Public Garages

The current parking access and revenue control system (PARCS) is near the end of its operational life. Significant progress has been made in the evaluation of system needs and the development of functional specifications for the proposed new system.

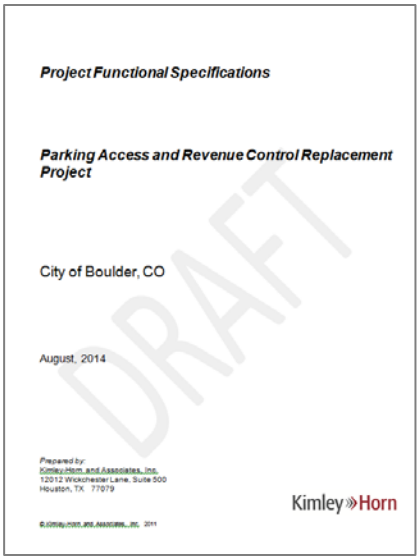
Review of the draft functional specifications and RFP document are currently being completed by City staff and the procurement process for the new system is expected to be completed by the end of 2014.


City of Boulder
Parking Facilities

Parking System
Evaluation and Recommendations Report

June, 2014

Prepared By
Kimley»Horn


Project Functional Specifications

Parking Access and Revenue Control Replacement Project

City of Boulder, CO

August, 2014

DRAFT

Prepared by:
Kimley-Horn and Associates, Inc.
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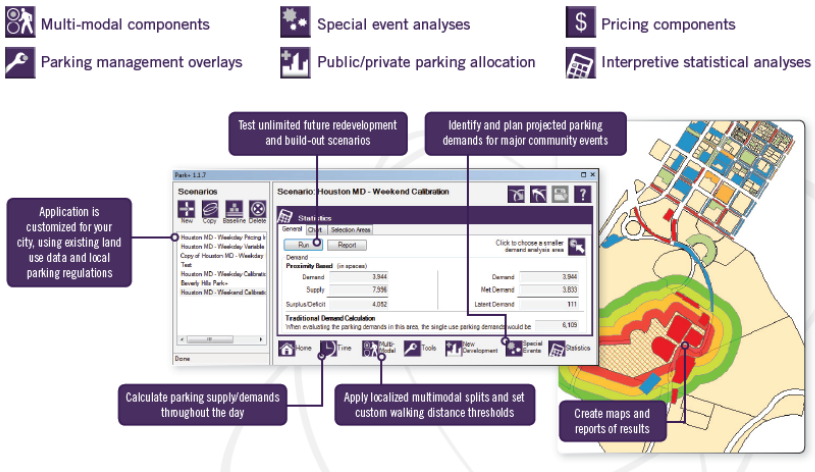
Kimley»Horn

3. Parking/Access Demand Planning Software

In order to plan for access and parking demand resulting from new and projected land uses, a software-based parking planning tool will be essential. A system exists, “Park Plus”, developed by Kimley-Horn and Associates that can model building uses as well as mode share percentages and parking demand rates to develop access demand projections for specific areas. This tool will be very important for the planning for the Boulder Junction area, where it is unclear what uses will be built, and for the redevelopment of University Hill.



Progress has been made in building the GIS-Based access demand model. Kimley-Horn and associates have met with representatives of Fox-Tuttle, a locally based planning firm that has worked for many years with the City of Boulder’s parking program to ensure consistency of data and to reduce the need to duplicate data collection and planning scenario development.

Communications and Community Outreach

In addition to the seven primary focus areas of the AMPS project, community outreach strategies are another major area of focus for the project team.

Three primary phases have been identified within the area of communications and community outreach. These three phases include:

I. Inform, Educate and Engage

II. Test Ideas, Inform and Engage

III. Implement, Inform and Educate

For each of these phases, a combination of traditional outreach tools and strategies as well as a menu of new web-based/innovative tools and strategies are being explored. Examples of what is envisioned under each category are outlined below:

Traditional Outreach Tools and Strategies

- Board Meetings
- Presentations to Key Groups
- Open Houses/Charettes
- Individual Interviews
- Surveys
- "Coffee Talk" Listening Sessions
- Focus Groups
- Development of Project Info-Graphics

Web-based / Innovative Outreach Tools and Strategies

- Project Website
- Project Facebook Page
- Instagram "Your Point of View"
- "Common Place" / Polls Everywhere
- "Inspire Boulder" / MindMixer
- Partnering Organization's Social Media Sites
- An Expert Advisory Panel
- Special Invited Experts on Specific Topics or Emerging Trends

Boulder Best Practices Research

Best Practices and Peer City Research Summary

The following information is a summary of the best practices and peer city research efforts conducted as part of Phase One of the AMPS project.

This research effort is primarily organized by the seven major Focus Areas of the AMPS project. It should also be noted that specific "Peer Cities" were identified by staff. In some cases, the places where parking management and TDM innovations are occurring cannot truly be called "peer cities" due to their size or other factors, however, due to the advanced nature of Boulder's programs, we need to look beyond programs of the same size or orientation. These innovative communities/programs were simply classified as "Cities We Can Learn From" to distinguish them from true "peer cities".

In addition, given the advanced and progressive nature of the programs currently in place in Boulder, many of the identified "best practices" are already in place in Boulder. In the summary boards being developed for upcoming public meetings and Board updates, the following format will be used when summarizing the extensive best practices research:

- All materials will be organized by focus areas
- Under each focus area the following structure will be used:
    - Researched best practices
    - Data from selected peer cities
    - Advanced Concepts / Innovations (Cities We Can Learn From)
    - Listing of best practices already employed by the City of Boulder
    - A category for "What's Missing" to allow board members and the general public to bring forward strategies that may not have been captured.
- For each "Row" above on the summary boards, supporting columns will provide the following data:
    - Name of the strategy being reviewed
    - A brief description of the strategy
    - Applicability to Boulder - A checklist of how the particular strategy aligns with the AMPS project's Guiding Principles
    - An assessment of the replicability of the specific strategy

Public Meeting Input

The summary boards described above will be used to solicit feedback from the public and elected officials as to which strategies they feel should be prioritized. A voting exercise will be conducted allowing attendees to express which strategies they feel would be most impactful and appropriate for additional evaluation, assessment and refinement.

Parking Management Strategies - On-Street

Best Practice # 1

Strategy:

Evaluate the use and management of loading zones to improve loading efficiency and access to businesses

Description:

Understand how commercial loading zones are being used and determine if there is an opportunity to better manage loading zones so that carriers can access them quickly and easily, businesses are supported, and so that on-street parking operations aren't adversely impacted.

Action Items for Consideration:

- Review curb lane uses (location and management).
- Consider conducting a limited "Curb Lane Management Study" as a pilot program.
- Review of commercial loading activity (when, where, and for how long loading needs to occur)
- Consider developing a permitting system for use of loading zones. The use of "In-Car Meters" as the permit mechanism is being piloted in several cities and some are employing them for business/commercial accounts. More information on this use can be found at: https://www.easyparkusa.com/business-commercial.
- Review enforcement of loading zone regulations

Potential Sub-Strategies for Implementation:

- Convert loading zone space to on-street parking spaces at certain times of the day when delivery activity is low or non-existent
- Consolidate loading zones along the curb so that multiple businesses have access to centralized loading and the remainder of the space along the block is open for other curb lane uses
- Consider implementing loading zone permits. Match the needs of the carriers and businesses (e.g. have different permits available for purchase that allow carriers to access zones for various lengths of time)

Documented Results:

- Efficient use of curb space
- Better access to business for carriers
- Reduced conflicts with other curb lane users
- Reduced confusion on when and where to load and park
- Reduced citations related to illegal loading/unloading procedures
- Improved traffic flow since carriers are not blocking traffic to make deliveries

Stakeholder Engagement:

This strategy would require extensive outreach with the public, but particularly with business owners and commercial carriers to help determine how to appropriately manage loading zones.

Applicability/Similarity to Boulder:

This strategy is applicable to Boulder because it involves efficient management of existing community resources to improve business operations, the users experience, and promote efficient use of the curb space. It can be tailored to meet the specific needs of the Boulder community.

This strategy supports City goals of economic development, preserving and improving community character, and improving the City's transportation network.

 **Replicability:**

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

To implement a change in management to the City's loading zones, (e.g. a cost to manage loading zones, such as requiring permits or having a special meter rate for commercial use, regulating placement or time limits of commercial vehicles, etc.) will likely require the City to update their policies.

Cost  **Implications:**

This strategy involves effectively leveraging already available community resources. The main cost of implementation might be in the stakeholder outreach, education, and communication.

References:

- Charlotte Center City Curb Lane Management Study (2011)
- New York City Off-Hour Delivery Program
- City of Houston

Best Practice # 2

Strategy:

Review implications of new federal regulations related to Accessible (ADA) Parking

Description:

On July 23, 2010, Attorney General Eric Holder signed final regulations adopting ADAAG 2004 for the design and construction of accessible buildings and facilities. The following is a summary of the information provided on the Department of Justice (DOJ) website. It should be noted that the regulations also include other requirements beyond simply adopting ADAAG 2004; thus the DOJ calls the overall regulation the 2010 ADA Standards for Accessible Design (2010 Standards).

The additional elements in the 2010 Standards (which DOJ terms “supplemental requirements”) appear to be in response to the most common lawsuits and otherwise contentious areas of enforcement since ADA first became effective. For example, there are updated regulations

related to requiring property owners/managers to allow service animals, wheel chairs and other mobility aids such as Segways in buildings, as well as updated requirements regarding communication aids, interpreters etc.

The 2010 Standards will take effect six months from publication of the regulations in Federal Register. Compliance with ADAAG 2004 for new construction and alterations will be required 18 months from publication.[1]

Action Items for Consideration:

- All new construction: after the trigger date after Feb/March 2012 must meet ADAAG 2004.
- All alterations to existing facilities: Alterations includes restoration as commonly defined in parking circles, as well as resurfacing of parking lots and any change to parking layout that occurs during resealing and restriping. These requirements have two parts: The actually planned restoration work aka "the alteration", and the path of travel to the area being altered.
    - If the alteration occurs after the trigger date, the alteration work must meet ADAAG 2004, even if it now meets 1991. For example, when parking lots are resurfaced and/or reconfigured after the trigger date, the parking layout has to be modified to meet the new requirement for 1 in 6 van stalls rather than the 91 requirement for 1 in 8 van stalls, unless it is structurally impracticable to do so. But even then the requirements should be met to the degree possible. For example, it would be structurally impracticable to provide the required 8'2" vehicular clearance for van stalls in a facility that does not now have that clearance. However 1 in 6 van stalls must still be provided, even without the required clearance. The reasoning is that many vehicles with side lifts requiring the larger stalls do not require the 8'2" clearance.
    - Path of Travel: ADA regulations require that improvements must also be made to the path of travel to the area being altered. For example, if the top level of the parking deck is being restored, there is an obligation to bring the path of travel to the top level up to ADAAG (1991 or 2004 according to the trigger date.) The limitation on how much must be spent on the path of travel is 20% of the cost of the alteration.
    - Safe Harbor: If the path of travel fully met the 1991 Standards before the trigger date, the "entity is not required to retrofit such elements to reflect incremental changes in the 2010 Standards solely because of an alteration to a primary function area served by that path of travel." In other words, no further improvements to the path of travel would be required if it met ADAAG 1991 before Feb/March 2012.
- Existing Facilities: ADA requires that property owners improve the areas of facilities where the public goes to receive goods and facilities3 that were constructed prior to January, 1993 to remove physical barriers. There is a different standard of care under the regulations for public entities (state and local governments and associated agencies) and private entities, under Titles II and III of the ADA, respectively.

[1] IPI – Department of Justice Adopts ADAAG 2004

Potential Sub-Strategies for Implementation:

- There is an excellent discussion of the differences between ADAAG 2004 and ADAAG 1991 posted on the DOJ website.[2]

Documented Results:

- Ensure compliance with ADA regulatory changes.

Stakeholder Engagement:

Changes in policy or regulations regarding handicap spaces or use of handicap placards should involve the handicap community, business owners, and the general public.

Applicability/Similarity to Boulder:

This strategy is applicable to Boulder and all public entities providing public parking which is mandated to comply with Federal accessibility standards.

Replicability:

This strategy is not optional and a careful evaluation of new regulations is recommended.

Policy Implications:

Review any special legal conditions that may be applicable to the City of Boulder.

Cost Implications:

A review of all potential changes required by the new ADA regulations should be conducted and specific costs estimated and compared to ADA guidelines related to cost limitations (typically 20% of the cost of the total project.

References:

- IPI ADA Whitepaper https://www.parking.org/media/58516/ada%20standards%202010b.pdf
- Topic Guides on ADA Transportation: http://dredf.org/ADAtg/index.shtml

Best Practice # 3

Strategy:

Assess the Use of Time Zones as a Parking Management Tool in Lower Demand Areas

Description:

Parking does not always have to be regulated by prices. Regulation through the use of time limits can be effective in areas where demands are not so high that they need to be managed by pricing. In general, time limits should be set to reflect parking demand. Some businesses thrive on shorter parking periods (30 – 60 minutes for dry cleaners or coffee shops, 1-2 hours for retail areas to allow customers to shop but also to encourage turnover, creating space for new customers; whereas other businesses or destinations need longer parking periods for their

[2] http://www.ada.gov/regs2010/titleIII_2010/reg3_2010_appendix_b.htm

users such as theaters and dining establishments. Time limits should be appropriately set to allow users to park for the necessary amount of time to support the surrounding land uses.

Action Items for Consideration:

- Research under what conditions might time zones without parking meters be an effective parking management strategy
- Understand the occupancies of the area in question to know when and where peaks occur
- Understand how long people are parking in an area
- Engage business owners to understand what time limits are suitable to support their business

Potential Sub-Strategies for Implementation:

- Adjust time limits in certain areas to reflect the needs of that area. For instance, an area that caters to long-term parkers can have longer time limits (e.g. around schools, employee parking areas, evening parking). Likewise, there may be some areas that need very little time and businesses thrive from higher turnover rates.

Documented Results:

- Maintains a level of availability along the curb. If it is determined that surrounding businesses and destinations have customers that only park for 1-2 hours, the parking time limits that reflect this ensure that people do not park for longer than necessary, creating more space along the curb for the next customer. As a result, users are able to find parking and businesses experience the amount of turnover necessary to support their business.

Stakeholder Engagement:

Any changes to the time limit structure should be clearly communicated to the public and other stakeholders through various methods of outreach (meetings, social media, media, etc.)

Applicability/Similarity to Boulder:

Time zone management is applicable to Boulder because it supports the City's goals of supporting area businesses by providing access to these destinations.

 **Replicability:**

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

Parking rules and regulations need to be considered and adopted. This strategy will likely trigger a change in the City's policies regarding time restrictions and how they are managed.

Cost  **Implications:**

This strategy is relatively easy to implement since it does not require large investments in new technology or other infrastructure. It is a restructuring of how the parking is managed.

References:

- City of San Jose, Department of Transportation

- City of Austin, Downtown Austin Alliance

Best Practice #4

Strategy:

Coordinate On- and Off-Street Parking Rates

Description:

On- and off-street parking rates should be coordinated so that the parking facilities work together as a comprehensive system to achieve a common goal. For instance, the rates can be coordinated so that they encourage long-term parkers to use off-street facilities and short-term parkers to use on-street parking.

Action Items for Consideration:

- Review and compare existing on-street and off-street parking rates
- Coordinate with off-street parking providers to establishing a coordinated rate structure

Potential Sub-Strategies for Implementation:

- Adjust rates so that on-street rates are competitively priced with off-street rates to encourage parkers to park in the desired locations for the desired lengths of time

Documented Results:

- Encourages parkers to park in off-street facilities if they are parking for longer periods of time
- Creates more availability along the curb for those who need parking for quicker trips

Stakeholder Engagement:

This strategy will require extensive coordination with private off-street parking providers. Any changes to the rate structure should be clearly communicated to the public and other stakeholders through various methods of outreach (meetings, social media, media, etc.).

Applicability/Similarity to Boulder:

A coordinated parking system supports the City's goal of providing a balanced transportation system that uses the available parking supply efficiently and effectively.

Replicability:

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

This strategy will require the City to reconsider their parking rules and regulations.

Cost Implications:

This strategy is relatively easy to implement since it does not require large investments in new technology or other infrastructure. It is a restructuring of how the parking is managed.

References:

- MTC Parking Code Guidance: Case Studies and Model Provisions (2012)
- City of Durham Comprehensive Parking Study

Best Practice # 5

Strategy:

Reassess Boulder's 72 Hour On-Street Parking Limitation (Abandoned Vehicles)

Description:

The City of Boulder considers a vehicle abandoned after 72 hours parked in one spot. As part of this project similar practices from other communities have been researched. A key consideration will be the balance between neighborhood livability and encouraging the use of other modes than driving. The following is a summary of the initial research:

Oregon DMV

- Vehicles in public right-of-ways that have not been moved in 72-hours are considered abandoned vehicles
- Anyone can report an abandoned vehicle towed and request removal
    - A posted notice must be affixed to the vehicle stating that if the vehicle is not removed, it will be towed
    - A form must also be filled out and signed that describes the vehicle to be towed, the location of the property the vehicle is on, and a statement saying that you have affixed a notice and waited 72 hours. This form must be provided to the towing agency.
    - References:
        - http://www.oregon.gov/ODOT/DMV/pages/vehicle/abandoned.aspx

Washington State Department of Licensing

- Abandoned vehicles are considered vehicles that have been impounded by a registered tow truck operator and held in their possession for at least 120 consecutive hours
    - The last registered owner on record must pay all costs related to the abandoned vehicle
- Reference Files:
    - http://www.dol.wa.gov/vehicleregistration/abandoned.html

Texas Statutes

- A vehicle is considered abandoned when it has been left unattended on public property for more than 48 hours or left unattended for more than 24 on the right-of-way of a turnpike
- Notice shall be given to the last known owner of the vehicle on record by law enforcement
- If left unclaimed, the vehicle can be auctioned
- Reference Files
    - http://www.statutes.legis.state.tx.us/Docs/TN/htm/TN.683.htm

City of Durham, NC Code

- An abandoned vehicle is that which:
  - Has been left on any public street or highway for more than 7 days
  - Is left on city owned and operated property for more than 24 hours
  - Is left on private property without consent of owner, occupant, or lessee for longer than 2 hours
- Notice is given to the registered owner by the housing code administrator. Notice contains:
  - Description of vehicle
  - Location of vehicle
  - Violation
  - Procedure owner can follow to request a towing
  - Date the vehicle will be towed (if not requested)
  - Notice that the vehicle is subject to a lien
- If owner cannot be identified, a warning notice will be posted on the vehicle with the date it will be towed and number to contact. The vehicle will not be towed until 7 days have passed
- Reference Files
  - http://durhamnc.gov/ich/cb/nis/Documents/Vehicle%20Ordinances%20(2).pdf

City of Maple Plain, Minnesota

- Abandoned vehicles are regulated because they can impact traffic, interfere on private property, and create safety and health hazards that impede the well-being of the public and contribute to public blight
- A vehicle is considered abandoned if a vehicle has remained on public property for more than 48 hours or on private property for more than 96 hours.
- Reference Files:
  - http://www.mapleplain.com/vertical/sites/%7B1E07A900-35B0-4FBD-9A42-9B27B50AAA7E%7D/uploads/%7BA421E71E-FDE6-4A21-A1F7-1FD3F62B0ECB%7D.PDF

Center for Problem-Oriented Policing, University of Albany, Abandoned Vehicles Guide No. 53 (2008)

- Abandoned vehicles can be a hazard (waste and fluids from the vehicle leak and aren't disposed of properly), attract unlawful behavior (drug drops, prostitution), and uncleanliness (refuse, act as homeless shelter)
- Vehicles are typically considered abandoned due to:
  - Condition – damaged or missing parts, garbage in the vehicle
  - Missing or outdated license plates or registration
  - Length of time at location – short period of time on highways and limited-access roads and longer periods of time in parking facilities, and mid-length of time for on-street parking
- Time must elapse between the time the vehicle is tagged or reported as abandoned and when it is towed.
- When analyzing a community's abandoned vehicle problem, consider the following:
  - The location and time vehicles are being dumped
  - Number of abandoned vehicles and their condition
  - Are the places vehicles are being dumped being affected environmentally

Action Items for Consideration:

- Boulder's 72 hour policy is consistent with several other communities and is greater than some cities and much less than others. It appears to strike a good balance.
    - The range from other communities was between 24 hours and 7 days.
- Providing registered vehicle owners with a reasonable period of time to respond is an important consideration
- The longer vehicles stay on the street, they more it attracts unlawful behavior (according to law enforcement personnel and cause environmental issues (according to public works officials).
- Reducing the interval for removing abandoned cars can result in less vandalism and more vehicles being returned to owners (these results occurred in Michigan as a result of reducing the time from 48 hours to 24 hours).
- Balancing between the aesthetics of living cars on-street for longer periods of time with encouraging people not to drive and use modes other than cars.

Documented Results:

Metrics for evaluating abandoned vehicle policy effectiveness include:

- Fewer documented abandoned vehicles
- Fewer abandoned vehicles reports
- Reduced time between reports
- Fewer vehicles sold at government auction
- Fewer vehicles reported meeting the abandoned vehicles definition for your community
- Fewer complaints from owners of abandoned vehicles re: lack of notification, lack of time to respond, etc.

Stakeholder Engagement:

The public should be informed of any changes made regarding the law; however, the process of changing the law should require only the normal level of public involvement associated with changes of this sort.

Applicability/Similarity to Boulder:

Virtually all cities have some form of abandoned vehicle policies in place. The issue here is how long is an appropriate timeframe before a vehicle is considered abandoned.

 **Replicability:**

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

Adjustments to the 72-hour limitation will require the City to review and update its policies and rules regarding abandoned vehicles.

Cost  **Implications:**

Low cost to implement.

Best Practice # 6

Strategy:

Repurpose On-Street Parking Spaces

Description:

With an explosion of new uses for on-street parking (bike corrals, bike sharing, car-share, electric vehicles, parklets, etc.) research how other communities address the policy issues related to these potential changes in the use parking spaces in the public right-of-way.

Action Items for Consideration:

- Understand parking demands to determine appropriate locations where spaces can be repurposed. This might be in areas with mid- to low parking demands or areas with ample parking supply.
- Review the use and implementation standards of parklets (where to locate and how to manage)
- Review the use and implementation standards for on-street bicycle parking (e.g. bike corrals), (where to locate and how to manage)
- Review the use and implementation standards for EV charging stations (where to locate and how to manage)

Potential Sub-Strategies for Implementation:

- Consider appropriate and wanted uses to repurpose on-street parking in appropriate locations (e.g. parklets, charging stations, car sharing, bike parking, etc.)

Documented Results:

On-Street Bike Parking: typically appropriate in a location that regularly sees more than 10 bicycles locked outside. Can hold approximately 20 bikes in one location and occupies 1-2 vehicular parking spaces

- **Parklets:** appropriate in areas with low parking occupancies. They expand park space, seating areas, green space, etc. of a community. Main benefit is that it maximizes the use of an otherwise underutilized space.
- **Car Share:** car share programs may occupy on-street parking spaces (the number depends on the size of the fleet), however they have been shown to reduce on-street parking demands because fewer people need to drive. In Hoboken, NJ, approximately 3,000 members have either decided to give up their personal vehicle or not purchase a car at all.

Stakeholder Engagement:

Engagement with stakeholders will play a major role in this strategy. The removal of on-street spaces is usually met with some contention and open, frequent communication needs to happen with surrounding land uses in order to gain support for the project. Education should also be a component of the stakeholder engagement.

Applicability/Similarity to Boulder:

This strategy supports the City's goals of creating a sense of place, improving sustainability practices, and efficient management of the on-street parking supply. This strategy is applicable in many communities; however the exact locations and implementation will have to be tailored to the City of Boulder to meet Boulder's needs.

 **Replicability:**

Although able to be applied to the City, this strategy requires some design and area specific considerations that make this strategy more difficult to replicate in all desired areas.

Policy Implications:

The City may have to review their right-of-way rules and regulations to determine whether certain other uses are allowed on the street. This may involve adoption of new policies to allow these uses and determine standards for when these uses are appropriate, design standards, and a process for request and implementation of these uses.

Cost  **Implications:**

This strategy has the potential to be more expensive because of the need for infrastructure, potential policy changes, coordination efforts, and potential technology related to the strategy.

References:

- City of Portland, Portland Bureau of Transportation
- City of Hoboken, Transportation and Parking
- "Data Show a City's Car Sharing May be Working..." The New York Times (2012)
- "2013 Seattle Free-Floating Car Share Pilot Program Report Prepared by the Seattle Department of Transportation" (2014)

Parking Management Strategies - Off-Street

Best Practice # 7

Strategy:

Develop relationships/potential partnerships with the owner's/operators of existing private parking assets as a cost effective and environmentally sensitive approach to improving parking supply/availability

Description:

As the public parking supply in the downtown gets tighter, it often the case that private parking supply is underutilized. There are two specific strategies that might be considered to increase the availability of publicly available parking by leveraging under-utilized private parking assets.

Downtown Seattle Parking Model

The first is a model jointly developed by the City of Seattle/The Downtown Seattle Association/Commute Seattle and the Metropolitan Improvement District which operates under the name "Downtown Seattle Parking" (www.downtownseattleparking.com). This partnership was created when the decision to remove the viaduct roadway from along the waterfront due to structural issues created by earthquake damage. Removal of the viaduct would also cause the loss of a significant amount of surface parking used primarily to support downtown retail. While the reality was that the loss of parking under the viaduct was not enough to create major parking issues overall, there would be localized parking shortages. The bigger issue was a perception of a lack of parking downtown and a perception that parking downtown was very expensive. Public opinion surveys ranked parking as one of the greatest barriers to coming downtown. Another factor in this equation was the fact that the City had not invested in many public off-street parking facilities, and therefore had very little ability to impact parking supply and/or pricing.

In response the City developed partnerships with private parking owners and operators and launched their E-Park Program – a system of variable message, parking wayfinding signs that included information on available spaces. This was followed by the Downtown Seattle Parking program that attempts to create a unified parking system and marketing program to promote a combination of parking and alternative transportation options, especially during anticipated 10 years of Waterfront construction. The Downtown Seattle Parking Program website also has excellent web-based maps and other resources documenting parking availability, location and rates. Recent improvements related to mobile-optimized websites have dramatically increased site usage. The program also invested heavily in paid advertising, extensive media coverage and a range of other outreach strategies to increase program awareness and utilization.

Documented results included dramatic increases in garage utilization (upwards of 146% in some locations). Specific agreements are required for participating private garage partners, including agreements for reduced pricing during certain timeframes to help address the "perception of cost" and affordability issues.

Downtown Asheville Model

In Asheville, NC a downtown parking study conducted by Kimley-Horn and Associates confirmed the suspicion that the City's three public parking garages were approaching capacity. The study projected that another 1,000 spaces would be needed over a ten year planning horizon within the study area. However, the study also made another interesting observation. While it was true that the City's three public parking facilities were over 90% utilized, these garages only represented 20% of the total parking supply in the downtown area. The remaining 80% of the supply was made up of private parking assets. The private parking resources (80% of the total supply) averaged a 50% utilization rate. A concept was advanced that the City could, in partnership with the private sector, develop a virtual "online market place" for the underutilized parking spaces. While the envisioned system might cost upwards of $1,000,000, that cost was approximately 1/25th of the cost of building a new parking garages to meet the long-term needs.

Action Items for Consideration:

- Assess private parking utilization rates
- Identify locations of available private parking resources
- Assess willingness of private parking owners/operator to participate
- Develop a strategy specific to Boulder
- Develop the framework for a pilot program

Documented Results:

- Improved parking availability
- Better use of existing assets
- Environmental benefits related to not over-building parking supply
- Cost savings compared to new facility construction

Stakeholder Engagement:

This type of program innovation will require significant planning, research and stakeholder engagement to produce a plan and get buy-in. However, evidence from the Seattle program indicates the program could generate significant benefits for all parties.

Applicability/Similarity to Boulder:

This strategy is applicable to Boulder as a potential strategy to address parking supply issues without building additional public parking, by leveraging existing, underutilized resources first.

Replicability:

These strategies are still relative new and would require a certain degree of customization and experimentation.

Policy Implications:

While these strategies are aligned with many overall community goals, issues such as revenue sharing, city investment in a program that would benefit certain private business could create potential policy issues.

Cost  **Implications:**

Compared to building new parking facilities this project could result in significant cost saving long-term, however an initial investment in system development, technology, marketing and community engagement would be required.

References:

- Seattle Downtown Parking Presentation from IDA Conference 2014
- www.downtownseattleparking.com

Best Practice # 8

Strategy:

Evaluate the use of "One Day Parking Permits"

Description:

Offering a single day parking permit for public garages may be a positive customer service amenity. This approach can simplify parking for visitors from out of town if businesses purchase them in advance and provide them to their guests. It can benefit the parking system by getting permits paid for in advance.

Another approach is to offer a single day parking through an on-line reservations system. This is done by the Bart Program in San Francisco. The "Hercules Transit Center Single Day Reserved Parking Reservation System" is for patron's using the Hercules Transit Center. All Sales are Final. No Transfers or Refunds. The following outlines this systems procedure:

- Have your license plate number available before continuing, if you do not have a plate number, use the last eight digits of your VIN number. Misentering your plate number will result in ticketing and billing for permits that may not be yours.
- Choose the desired station and desired dates of use from the menu. A computerized reservation system will determine whether permits are available at that station for the dates requested. Only 10 days of permits may be purchased at one time.
- If permits are available, you will be asked to supply the license number of the vehicle in which the permit will be displayed.
- Credit card information where parking fees will be billed. Your credit card statement will show REMIT-ONLINE as the payee. Renounced charges are subject to a $20 fee.
- You will be billed once each month (in areas) for all the single day permits you purchased during the prior month to the last card entered prior to billing. The billing to your card will reflect the total of ALL permits purchased during the prior month.
- Upon approval, print EACH permit FOR EACH day you have reserved on your home or office printer.
- Display ONLY ONE permit on dash of vehicle in parking area at authorized location.

The City of Palo Alto offers All-Day Visitor Parking Permits

- All Day Visitor Parking
  - Visitors may purchase a one-day permit. Permits are valid in all off-street parking lots and garages. All-day permits are not valid for on-street parking spaces.
  - All day permits may be purchased at Palo Alto Civic Center, 250 Hamilton Avenue on the first floor at Revenue Collections, or the first level of the Bryant Street and Cowper/Webster garages.
  - The cost is $17.50/day for downtown area and $7.00/day for California Avenue business district. Day permits for the California Business District may only be purchased at the Civic Center, Revenue Collections at this time.
  - Construction worker vehicles require a special on-street parking permit that can be purchased at the City of Palo Alto Development Center, 285 Hamilton Avenue and the cost for this permit is $76.00/space per week.

The City of Ann Arbor experimented with a similar system through a company called Parking Carma.

Action Items for Consideration:

- Determine rules related to permit issuance and usage.
- Identify where permits are valid and when
- Identify where and how permits can be obtained

Documented Results:

- Effective in high demand areas
- Provides reliability for those who need to park, but may come later in the day when parking may be full or harder to find.
- Rate can be higher to support the benefit of having a space guaranteed.
- Can be problematic if supply is overly tight and space cannot be guaranteed
- May require special equipment to secure/access reserved areas/spaces.

Stakeholder Engagement:

Market research should be conducted in advance to verify that there is sufficient demand for such as service. If implemented, this strategy would require education related to how the program functions, permit costs, special rules/regulations, etc.

Applicability/Similarity to Boulder:

This strategy may be applicable to Boulder if there is a demonstrated need for this type of service.

Replicability:

This strategy is replicable for any community.

Policy Implications:

This program addition is considered a relatively minor program option, which should not create significant policy issues.

Cost **Implications:**

A cost/benefit analysis is recommended re: the cost for developing or purchasing the parking reservation software. This approach may be supported by some pay-by-phone applications.

References:

- https://www.park-by-phone.com/daily/default.aspx?ownerid=hercules
- http://www.parkingcarma.com/

Best Practice # 9

Strategy:

Develop a Parking and Access Management Program Strategic Communications Plan and Annual Report Template

Description:

It is important to communicate program progress and goals with the public on a regular basis to keep them informed. A template for an annual report could be developed to communicate the progress, goals, and upcoming projects or improvements. A consistent template will streamline the process of developing the report as well as give the report a unique identity.

Action Items for Consideration:

- In developing an on-going strategic communication plan for your program, the following project goals should be assessed:
  Does it effectively support your goals?
- Does it honor the findings of your audience analysis?
- Do you have the resources necessary to complete the project?
- Can you execute in a way that aligns with your windows of opportunity?
- Can you execute in a way that allows for durability, easy updating, or adaptive reuse?

Documented Results:

- Improved communication with the public.
- The report can be used as an educational component to educate the public on the aspects of the parking system.
- Re-establishes City goals on a regular basis.

Stakeholder Engagement:

Stakeholder engagement to produce the report is likely minimal since it is a report that communicates the state of the parking program.

Applicability/Similarity to Boulder:

This strategy is applicable to the City because it involves continued communication of the City's programs and goals, thus supporting the goal to be an inclusive community.

Replicability:

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

The City would not have to review or adopt new policies to produce a report of this nature. It may, however, help the City evaluate its goals and direction and highlight new policies or regulations that should be considered.

Cost  **Implications:**

This strategy is relatively easy to implement since it does not require large investments in new technology or other infrastructure. It is a communication document of how the access management and parking systems are managed.

References:

Missoula Parking Commission Annual Report (2012)

Best Practice # 10

Strategy:

Explore the Concept of "Edge Parking" as Potential Commuter Parking Strategy

Description:

Remote parking and park and rides are nothing new, but with the growth in Transit Oriented Developments, in which less parking is being provided to increase the potential for development density, providing "storage parking" options that can be accessed by rail, BRTs or transit for occasional use of second vehicles is a topic that is gaining attention.

Action Items for Consideration:

- Analyze transit network and parking available that support those transit networks.
- Coordinate with transit providers to determine what types of parking would best support their users.
- Review land use codes and how they apply to transit.
- Analyze parking demands and ridership to understand how much parking should be provided.
- Ancillary items to consider could include connectivity for pedestrians and bicyclists.

Potential Sub-Strategies for Implementation:

- Consider shared parking agreements with nearby parking providers
- Consider changes to land use codes to reduce parking requirements
- Establish parking priority for van/carpools, carshare programs
- Implement paid or permitted parking to regulate high parking demands in facilities that serve transit.

Documented Results:

- Supports the use of transit because it provides a place for commuters to parking their vehicles and take transit options to complete their trip.
- As parking facilities near transit providers becomes too heavily occupied, these sub-strategies can help to balance demands while still supporting transit user needs.

Stakeholder Engagement:

Stakeholders, particularly the transit providers and operators, need to be engaged to help determine what parking is appropriate and how to manage the parking.

Applicability/Similarity to Boulder:

This strategy supports the City's goals of supporting transit and other modes of transportation by providing sufficient parking to support the transit network.

Replicability: 

Although able to be applied to the City, this strategy requires some design and area specific considerations that make this strategy more difficult to replicate in all desired areas.

Policy Implications:

This strategy would require that parking rules and regulations need to be considered and adopted as they relate to transit use. In some instances it may require the reduction of parking requirements. But more so it may be in regards to how the parking is managed.

Cost Implications: 

The cost for this strategy varies depending on what is needed. If parking facilities already exist and it is just a matter of managing them for the use of transit riders, then the cost might be relatively low. However, if new parking needs to be constructed, the price will be on the higher end.

References:

- "Smarter Parking at Transit Stations", Susan Shaheen and Charlene Kemmerer, (2007).
- "Guidelines for Providing Access to Public Transportation Stations". Transit Cooperative Research Program, Report 153.
- City of Seattle, Sound Transit
- Santa Clara Valley Transportation Authority

Best Practice # 11

Strategy:

Use Parking to Create a Sense of Place

Description:

Garages don't have to be the stereotypical structure with a less than appealing façade. There have been trends in many downtowns to design lots and garages so that they match the character of the surrounding area. In this way, garages can be part of the fabric of the community, rather than an eyesore. Additionally, off-street parking facilities can be designed to accommodate other uses when they aren't being utilized. An example can be farmer's market or other type of social activity on the weekend in a lot that is typically only used during the week.

Action Items for Consideration:

- Identify existing facilities that could incorporate some art, mixed uses, or otherwise support community needs.
- Adopt design guidelines and land use policies that encourage the integration of parking facilities into the fabric of the community.
- Consider access management guidelines to restrict the number of driveways for a parking facility.

Potential Sub-Strategies for Implementation:

- Incorporate art into parking garages.
- Incorporate mixed use into garages (e.g. retail, restaurant on first floor and parking above)
- Use lots to host community events when they aren't occupied (e.g. farmer's markets on the weekends)

Documented Results:

Integrating parking facilities into the character of the community has been gaining a lot of recent attention, particularly in downtown parking facilities. Having the ability to incorporate retail or restaurants in a parking facility makes the parking facility more attractive. Incorporating art or at least a decorative facade into the parking structure that matches the surrounding buildings helps to maintain the visual quality of the area.

Stakeholder Engagement:

The City should work with developers, parking providers, and internal city departments to determine appropriate guidelines for alternative uses and design guidelines for parking facilities.

Applicability/Similarity to Boulder:

This strategy supports the City's goals of creating a sense of place, maintaining and building upon the City's character, while supporting the transportation network.

 **Replicability:**

Although able to be applied to the City, this strategy requires some design and area specific considerations that make this strategy more difficult to replicate in all desired areas.

Policy Implications:

This strategy would require that parking rules and regulations need to be considered and adopted, related to designing and construction of parking facilities and how those facilities can be incorporated into the community.

Cost  **Implications:**

The cost for this strategy varies depending on what is needed. If the result is a restructuring of the parking policies then the cost might be relatively low. If the City becomes more involved and decides to construct, redevelop, or add art or other uses to the facilities, it may be more expensive.

References:

- "Build a Better Burb How to Manual: Better Transit/Less Parking". Susan Weaver.

Best Practice # 12

Strategy:

Explore the "Brackets" System of Shared Parking

Description:

The "Brackets" concept takes a combination of mainstream ideas and packages them in a new way. The "Brackets" concept marries a shared parking strategy with signage/wayfinding,

pedestrian pathways and landscape improvements that make it easier to find available parking, and more pleasing to walk from the designated parking areas to a range of possible destinations. This concept could be linked to more effectively utilizing private parking assets in an integrated system.

Action Items for Consideration:

- Coordinate with all off-street parking providers to determine their occupancies and best ways to navigate to their facility.
- Install new signage where appropriate to help people navigate to parking facilities. If the City desires the wayfinding system can be dynamic, allowing the number of available spaces to be shown. This would require additional coordination with parking providers to ensure that they count vehicles entering the facility and are able to share that information.
- Clearly identify each facility by name and/or visually (e.g. giving each facility a unique look).

Potential Sub-Strategies for Implementation:

- Facilitate shared parking between municipal lots and other parking providers
- Direct motorists to available parking with common signage, wayfinding and well landscaped pedestrian pathways. The use of mobile apps is another potential option to promote parking options and availability.
- Create an identify for each lot and tie the lots together in a systematic way.

Documented Results:

The brackets have helped balance demands between off-street facilities that were easier to find (and therefore almost always full) and those that were less easy to find (and therefore underutilized). As a result, the brackets helped make better use of the parking that was already available.

Stakeholder Engagement:

Engagement for this task is mostly with the parking provider community to determine appropriate methods for wayfinding and identification. This relationship with the parking providers would have to be ongoing to maintain the system. The City could act as the facilitator that brings all parties to the table to discuss how this strategy would be best applied.

Applicability/Similarity to Boulder:

This strategy is able to be applied to the City of Boulder since it is more of a coordination and management strategy. The wayfinding system can be incorporated into other City wayfinding systems, should the City decide to move in that direction. Additionally, this strategy supports the City's goal of optimizing the existing parking supply.

Replicability: 

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

The key component of this strategy is cooperation among the various off-street parking providers. However, this strategy may require the City to consider their signage policies and

update them if necessary, particularly if dynamic wayfinding is desired. The policies need to be supportive of the City's goals.

Cost Implications: $

The cost to implement this strategy could vary; however, this strategy has opportunity for public/private partnerships that may alleviate some of the cost for the City. The cost would lie in installation of new signage and continued coordination.

References: "Main Street Brackets: Shared Parking Patchogue". Build a Better Burb.

Technology and Innovation Strategies

Best Practice # 13

Strategy:

Develop an Overview of Currently Available Parking Technology Options

Description:

This review will focus on currently available technologies, payment methods, and their implications for both the customer and program staff. It is also important to understand that more technology is not always better, but rather how that technology is used. A lot can be accomplished with efficiently used, minimal technology. Technologies for consideration could be in-car meters, “Skymeters”, various pay station options and add-ons. This would include a review of what benefits come with each type of technology. This strategy would evaluate the different technologies available in Boulder and consider ways to integrate them into a comprehensive system.

Action Items for Consideration:

- Inventory the type of technology currently in use by the City and its add-on capabilities.
- Review City parking goals and determine whether the technology is able to accomplish the City's goals.
- Research existing parking technologies and their benefits.

Potential Sub-Strategies for Implementation:

- Implement add-on features to the existing technology in use (e.g. improved payment options, increased capabilities to collect parking data on the back-end to better analyze parking patterns, etc.)
- Install new technology to enable the City to meet their parking goals.

Documented Results:

Improved technology makes the parking system easier to manage from the City's perspective and easier to use from the users perspective.

Stakeholder Engagement:

When reviewing available technology it might be beneficial to understand how the system is used and what users would like changed to make the system better. To accomplish this, engagement with the public, users, and business owners is critical.

Applicability/Similarity to Boulder:

This strategy is applicable to the City because it involves a review and improvement of their technology. It helps support the City's goal of managing the existing parking system more efficiently and effectively.

 **Replicability:**

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

Since this strategy is to inventory and review available technology trends, it would likely not trigger any policy changes.

Cost  **Implications:**

This strategy is relatively easy to implement since it does not require large investments in new technology or other infrastructure. It is an analysis of the parking system technology and potential restructuring of how the parking is managed through technology.

References:

- City of Phoenix On-Street Parking Study, Kimley-Horn and Associates (2012).
- Missoula Parking Commission Parking Pay Station Study: On-Street Parking Technology Overview, Kimley-Horn and Associates (2013).

Best Practice # 14

Strategy:

Research the Latest Developments in the Area of Parking Apps, Parking Availability Monitoring

Description:

Wireless communications are transforming the parking and transportation industry by providing new and powerful tools to improve information on transportation options, providing parking availability, parking pricing and trip planning.

There are a range of potential options in this area. The most technologically advanced (and most expensive) systems utilize wireless sensors embedded into the pavement to track utilization of on-street parking in real-time. (LA Express Park, SFpark, etc.). One use of this new on-street utilization data has been to inform demand-based parking pricing programs. The theory is that in areas with higher parking demand the price to park would increase, thus shifting demand to other on-street areas with more availability by offering a lower price point or to available off-street locations. This “balancing” of parking demand also has the effect of reducing congestion from vehicles “cruising for parking”, improves the perception that parking is available by targeting a 15% vacancy rate for on-street spaces and has environmental benefits related to reducing vehicle emissions and vehicle miles traveled by reduced cruising. One of the systems

with the most market share in this arena is the StreetLine system. ParkSight is a software module within the StreetLine system that provides extensive system data that can be used to drive parking analytics to help you better understand how your assets are being utilized and allowing better data-driven decisions. For more information visit: http://www.streetline.com/.

Other, less equipment dependent options are also on the market. For example, ParkMe is a mobile app that uses historical parking utilization data merged with a proprietary program/algorithm to provide potential parkers with data that estimates "the likelihood" of finding an available space based on historical patterns. For more information visit: http://www.parkme.com/.

There is an extensive amount of information available on this topic. A separate white paper has been provided with information on all the major programs currently being tested from around the country. Also, the SFpark program from San Francisco recently issued its evaluation report of the multi-million dollar, FHWA funded pilot project. This evaluation is also included in the research materials.

Action Items for Consideration:

- Research smart phone applications and implementation and data needs associated with smart phone or web-based parking tools.
- Document the latest technologies and applications related to parking and access management and explore potential pilot programs for those strategies most applicable to Boulder's current needs.
- Low or no-cost "pilot programs" are being offered by several of the major system providers and may be an option for Boulder to consider.

Potential Sub-Strategies for Implementation:

- Coordinate with all parking providers to obtain availability, rate, time limit, validations, and other necessary information that the City may want to provide on a map, website, or application.
- Review the City's goals to determine the best technology(ies) to use.
- In reviewing the major sensor-based programs from around the country, one key issue emerged. While having real-time utilization data for on-street parking was valuable, parking rate changes based on demand were not effective unless they could be communicated and understood by the public so that they could use the data to affect parking behavior changes. As a result, demand-based pricing changes that originally were tested on a weekly basis, shifted to monthly and eventually to a quarterly basis.
- Seattle has chosen to use a more traditional data collection process and make adjustments only once per year

Documented Results:

Use of maps, parking applications, and availability monitoring enable users to find parking easily, reducing the need to circle to find parking and thus reducing congestion and vehicular emissions. Additionally, users are able to make better decisions about where to park before they get in the car. Furthermore, identifying where parking is available or where it is cheapest can help to balance parking demands, both on- and off-street.

The SFpark Pilot Project Evaluation document published by the San Francisco Municipal Transportation Agency (SFMTA) is organized by the following chapters:

- Executive Summary
- Overview of SFpark
- Effectiveness of Parking Pricing
- Effectiveness of Parking Management
- Parking Enforcement
- Congestion and Environment
- Transit Performance
- Customer Experience
- Economic Vitality
- Financial Analysis
- Technology

Stakeholder Engagement:

This strategy requires coordination with all parking providers to obtain and update price, time limit information, availability, and other parking information that the City wishes to track and communicate to the public.

The public, parking users, and businesses should be engaged to solicit their input on which technologies they prefer.

Any implementation of new technology should be well advertised to the public and an educational component should be included in the outreach efforts to help people learn how to use the new technology.

Applicability/Similarity to Boulder:

This strategy is applicable to Boulder since it is a review and update of wireless parking technology. It supports the City's goals of effective and efficient management of the City's parking and transportation network.

Replicability:

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

This strategy may require the City to evaluate their policies on the use of wireless technology.

Cost **Implications:**

The cost to implement this strategy involves extensive and ongoing coordination with parking providers as well as maintenance of the wireless technology in use.

References:

- SFPark Pilot Project Evaluation, SFMTA (2014)
- LA Express Park

Best Practice # 15

Strategy:

Multi-modal Apps and Payment Cards

Description:

Our cities are undergoing a dramatic shift in urban mobility. Changing demographics, economies, technologies, and environmental pressures have altered traditional travel demand to more sustainable transportation modes. The future of urban mobility, specifically in regard to public transit and shared-use mobility services (e.g., carsharing, bikesharing, and ridesharing), as well as multi-modal transportation. Multi-modal means having access to multiple modes in making a trip.

One aspect of what has been called “digitized” transportation access involves the use of “multi-modal apps and integrated transportation payment platforms.

Shared-use mobility services can complement public transit by addressing the first/last mile problem and, thereby, enable households to reduce their automobile dependence. Multi-modal trip making has created a new demand for enhanced integration among transportation options. At present, the vast majority of transportation systems require that travelers use transit smartcards, bikesharing key fobs, and carsharing mobile apps and/or smartcards to access modes independently. This can create a disarray of memberships and hardware. Instead, users are in need of an integrated platform that enables them to seamlessly compare (cost, route, time spent, etc.) and access and pay for different transportation services.

The smartphone is one tool likely to have an increasing role in multi-modal transportation. Mobile apps like RideScout and Nimbler, which aggregate public transit and shared-use mobility services into one map, allow users to find the various modes available nearby and even book and pay for some. Similarly, Red Ride aggregates ridesharing, on-demand ride services, and carsharing services and enables users to find the closest vehicles available. These apps are on the forefront of “digitized” transportation access and will play a growing role in urban mobility in the future.

Apart from the smartphone, RFID technology may also play an increasing role in multi-modal transportation in the future. Unlike the smartphone, most public transit services, many carsharing, and several bikesharing providers currently enable user access through an RFID card, and some partnerships have already been formed.

Action Items for Consideration:

- Review programs such as:
    - Chicago Transit Authority (CTA) and I-Go Carsharing that have begun offering a joint carsharing and public transit pass.

  - New York, San Francisco, and Chicago, bikesharing systems are equipped with RFID card readers in anticipation of a multi-use RFID card.
  - Similarly, B-cycle bikesharing equipment, which can be found in over 15 cities across the United States, features RFID card readers.
  - In London, the Oyster card has set the precedent for RFID admission as cardholders are able to access local and regional forms of the transportation network with a single card, including the subway, light rail, regional rail, trolleys, and buses.

- While multi-modal RFID cards are already helping users access multiple transportation modes, they too have their limitations. Most apparent: RFID cards are unable to show expected trip times or give users an understanding of where the closest available bike sharing bicycle or carsharing vehicle is located. Recognizing this gap, the company TransitScreen developed a kiosk for public transit destinations that enables users to find which transportation options are available nearby. Hypothetically, a cardholder would be able to find their mode(s) of choice on TransitScreen − or a similar kiosk − and use a single RFID card to access them, regardless of the mode.

Potential Sub-Strategies for Implementation:

- Review transportation alternatives and evolving infrastructure
- Identify potential funding opportunities that, based on the trends, can help the City with transportation projects.
- Explore trends in the use of hybrids and electric cars

Documented Results:

Examples of this emerging trend include:

- Washington, DC-based RideScout integrates data from a host of different providers, including carshare, bikeshare, fixed-route transit, and the burgeoning market of ride services.
- Commute Greener! (a platform for mobility management) UbiGo is a “mobility as a service” project that uses the platform. Both UbiGo and Commute Greener! are examples of innovative initiatives organized by the telematics service provider WirelessCar, a wholly owned subsidiary of the Volvo Group.
- The Las Vegas based company Zappos’ Project 100, which aims to create a seamless network of 100 on-demand chauffeured Tesla sedans, 100 shared vehicles, 100 shared bikes, and 100 shared shuttle bus stops that a phone app would optimally assign to each subscriber who inputs a destination. This mixed mode "concierge" service could be the next level of the concept of mobility as a service.

Stakeholder Engagement:

Since this strategy is to review mobility trends, stakeholder engagement may be minimal. However, the City may wish to survey the general public or other select groups to identify their preferences in regards to some results found in the analysis of the trends.

Applicability/Similarity to Boulder:

This strategy is applicable to the City of Boulder in that it is very well aligned with the City’s transportation and environmental goals.

Replicability: 

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

A potential outcome of such a review could be to leverage this new technology trend to shape and influence commute behaviors, improve mode share and influence transportation practices and policies.

Cost Implications: 

Costs will vary depending on the specific technologies employed, however the cost to the City could be minimal if its role is primarily an advocate of private sector initiatives.

References:

- Is The Future Of Urban Mobility Multi-Modal & Digitized Transportation Access? (Susan A. Shaheen, Co-Director, Transportation Sustainability Research Center, University of California, Berkeley and Matthew Christensen, Researcher, Transportation Sustainability Research Center, University of California, Berkeley) http://www.newcitiesfoundation.org/future-urban-mobility-multi-modal-digitized-transportation-access-2/
- "Next Stop, Innovation: What's Ahead for Urban Mobility?" Wharton Enterprise (2013)

Best Practice # 16

Strategy:

Explore Emerging Best Practices in the Area of Electric Vehicle Charging Stations

Description:

As the nation becomes more environmentally conscious, there has been a rise in the ownership and use of electric vehicles. To help support this trend, cities across the nation are looking to provide charging stations in appropriate locations, however this often raises issues of what is appropriate, how does this get incorporated into the utility network, and how can these stations be incorporated into the parking network (on- and off-street).

Action Items for Consideration:

- Identify appropriate number of and locations for charging stations (perhaps priority locations to encourage use of EVs).
- Provide various types of charging stations to enhance options (Levels 1-3).
- Determine a fee schedule or time limit for these spaces (e.g. Salt Lake City allows free parking at all charging stations, although considering implementing a fee for Level 3 stations. All stations are regulated by a 2-hour time limit and must be charging when parked).
- Identify the location and regulations of EV parking with signage.
- Post information on the location and use of EV stations on the City website.

Potential Sub-Strategies for Implementation:

- Identify potential funding sources to help fund EV charging station projects.

- Determine appropriate incentives to encourage use of Eves (e.g. priority parking spaces, reduced rates for EVs, extended time limits, etc.)

Documented Results:

Encourages the use of EVs, which can lower emissions caused by traffic and support other sustainability goals.

Stakeholder Engagement:

This strategy would require extensive outreach with the public, parking users, and business owners.

Applicability/Similarity to Boulder:

EV stations are able to be installed in any community interested and able to do so. This strategy is applicable to Boulder because it supports the City's sustainability initiatives.

Replicability: 

This strategy is able to be replicated for the City of Boulder, however, the policies and practices that are implemented would have to be very specific not only to the City but to the corridor the practices are being implemented.

Policy Implications:

Implementation of EV charging stations would require a review, update and adoption of policy changes in regards to how EV stations are implemented, managed, regulated, and maintained.

Cost Implications: 

This strategy has the potential to be more expensive because of the need for infrastructure, potential policy changes, coordination efforts, and potential technology related to the strategy.

References:

- City of Salt Lake
- City of Boston
- "Electric Vehicle Infrastructure Implementation by DOE Clean Cities". US Department of Energy
- "Project Get Ready", Rocky Mountain Institute. (2009)
- US Department of Energy, Plug-In Electric Vehicle Handbook for Public Charging Station Hosts
- San Jose Clean Air Parking Program

Best Practice # 17

Strategy:

Automated Parking Garages or Automated Vehicle Storage and Retrieval Systems (AVSRSs)

Description:

Automated parking is the automated storage, or parking, of vehicles with no human intervention. The technology used to do this is typically based on automated warehousing and there are several different technologies used in automated parking today.

From a driver's perspective they simply park their vehicles in a parking module, somewhat similar to pulling into a single garage, and are guided to the correct parking position by sensors via a display sign. The drivers switch off their engines, all vehicle occupants leave the parking module, and the parking module door is closed to secure the module. Once the module is secured the vehicle is removed from the parking module and stored. When drivers return and request their vehicles, their vehicles are returned to a parking module, usually facing the correct direction, ready to be driven away.

Since there is no requirement for ramps, driveways and personnel access to the parking areas, automated parking can typically park twice the number of vehicles in the same volume as conventional parking. Or, conversely, park the same number of vehicles in half the volume.

Some of the potential advantages of automated parking over conventional parking are:

- Reduced construction costs through less excavation, air rights saving and less construction time
- Reduced operating costs through accelerated depreciation, lower ventilation and lighting requirements, lower operator costs and reduced insurance premiums
- Reduced land cost due to smaller footprint
- Added value from the space gained providing more leasable or sellable real estate
- Improved entitlements for developers
- More LEED points available
- Safe and secure parking for drivers and their vehicles
- Less CO2 emissions and more green spaces
- All parking spaces can be ADA compliant

Source: http://automatedparking.com/

Action Items for Consideration:

- Automated garages are becoming much more prevalent and reliable, especially in China and other countries. While only a handful have been constructed in the US, the technological advances combined with the benefits and features noted above begin to make this option more attractive and viable for certain applications.

Documented Results:

Boomerang Parking Systems have developed mechanical parking structures leveraging "robotic devices" combined with a "Tray System" that offers the following benefits:

- Robot lifts only the tray - nothing touches the vehicle
- Rolls on solid concrete decks (new or retrofit)
- Easy to maintain over long lifecycle
- Moves underneath vehicles from any side
- Transports vehicles in any direction
- Rotates vehicles without a turntable
- Lifts payloads up to ~7,000 lbs

- Battery operated

Stakeholder Engagement:

Prior to considering this design option for future public parking facilities, a good deal of public education and stakeholder feedback would be highly recommended.

Applicability/Similarity to Boulder:

This strategy may be most applicable to parking for residential or other developments with constrained sites.

Replicability:

This strategy is able to be replicated for the City of Boulder, however, the right set of site constraints, user mix and land uses would have to come together for this approach to be viable. A key issue remains system through-put at peak demand periods. However, under the right set of circumstances, the financial, operational and energy efficiency characteristic could make this an effective solution.

Policy Implications:

Given the relatively limited implementation of this technology in the US, this could be a politically risky and sensitive strategy. An investment in this cutting edge technology would warrant a robust public dialogue, a stringent due diligence process and potentially a defined policy statement outlining the criteria to be used in the assessment/approval of this option if public funds are to be used.

Cost Implications:

This strategy can be cost effective under the right conditions.

References:

- http://automatedparking.com/
- http://boomerangsystems.com/

Best Practice # 18

Strategy:

Preparing for “Driverless Cars”

Description:

In the “innovations” category, the news is abuzz with talk of “driverless cars”. A driverless car, also known as an autonomous car, driver-free car, self-driving car, or robot car is an autonomous vehicle capable of fulfilling the transportation capabilities of a traditional car. As an autonomous vehicle, it is capable of sensing its environment and navigating without human input. Robotic cars exist mainly as prototypes and demonstration systems. As of 2014, the only self-driving vehicles that are commercially available are open-air shuttles for pedestrian zones that operate at 12.5 miles per hour.

Autonomous vehicles sense their surroundings with such techniques as radar, lidar, GPS, and computer vision. Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage. Some autonomous vehicles update their maps based on sensory input, allowing the vehicles to keep track of their position even when conditions change or when they enter uncharted environments.

In July 2013 Vislab world premiered BRAiVE, a vehicle that moved autonomously on a mixed traffic route open to public traffic. As of 2013, four U.S. states have passed laws permitting autonomous cars: Nevada, Florida, California, and Michigan. In Europe, cities in Belgium, France, Italy and the UK are planning to operate transport systems for driverless cars, and Germany, the Netherlands, and Spain have allowed testing robotic cars in traffic.

The Google Self-Driving Car is a project by Google that involves developing technology for autonomous cars. The software powering Google's cars is called Google Chauffeur. The project is currently being led by Google engineer Sebastian Thrun, former director of the Stanford Artificial Intelligence Laboratory and co-inventor of Google Street View.

Autonomous Car Parking

There are only a few minutes before your flight check-in closes, or before your train departs, but you now have to spend precious time hunting for a free space at the airport or station car park. Imagine leaving your vehicle at the main entrance and letting the car do the rest on its own. Researchers from Germany, Italy, the UK and Switzerland are working on this, and successful tests took place at Stuttgart airport earlier this year. €5.6 million of EU funding is invested in the system which will be available in the coming years.

A Smartphone App to Leave and Get Back the Car

Drivers will be able to leave their car in front of the car park and use a smartphone app to trigger the parking process. The vehicle will connect with the car park's server and drive itself to the designated space. While in the garage, the car can also be programmed to go to a charging station. Upon returning, the driver uses the same app to summon the car – fully charged and ready to go.

Since GPS satellite signals don't always work inside garages, the scientists have developed a camera-based system based on their expertise in robotics and environment sensing. Safety is at the center of the project: the car is designed to avoid unexpected obstacles.

Dr Furgale believes the same technology could be used to develop autonomous parking systems for electric cars on city streets. "That will be more of a challenge", he says. "But once you have the maps in place, the rest of the technology will come together."

Obviously, this technology is still years away from widespread commercial applications, but then this whole concept was virtually unimaginable just a few years ago.

Action Items for Consideration:

- None at this point; but continue to monitor technological developments.

Documented Results:

None at this point.

Stakeholder Engagement:

None at this point.

Applicability/Similarity to Boulder:

In the future, more and more people will drive electric cars and will switch from one mode of transport to another – creating the need for more and varied parking options at transport hubs. To prepare for this mobility shift, the V-CHARGE consortium is working on a fully automated parking and charging system for electric cars at public car parks.

"The idea is that we can actually use technology to give people a better mix of public and private transport", explains Dr. Paul Furgale, scientific project manager for V-CHARGE and deputy director of the autonomous systems lab at the Swiss Federal Institute of Technology in Zurich.

Replicability:

This strategy is able to be replicated for the City of Boulder, however, the policies and practices that are implemented would have to be very specific not only to the City but to the corridor the practices are being implemented.

Policy Implications:

None at this point.

Cost Implications:

None at this point.

References:

- http://europa.eu/rapid/press-release_IP-14-894_en.htm
- http://en.wikipedia.org/wiki/Autonomous_car

Parking Enforcement Strategies

Best Practice # 19

Strategy:

Escalating Parking Fine Structures

Description:

Escalated parking fines allow cities to fine more heavily for a second offense, as opposed to a flat fine for each type of offense. Escalating or progressive fine structures are seen as an effective strategy to put the focus on the “real enforcement problem”. This strategy also has the potential to be less punitive to occasional violators and provide a greater opportunity for community education since people won't be as disgruntled toward enforcement and will learn how to properly park from the first offense experience.

When considering parking enforcement and parking fine structures, it is important to consider “What is the real problem we are trying to solve?” The real problem is keeping long-term parkers from parking in what should be short-term parking resources. Therefore, the occasional violator that was having fun shopping and over stayed his or her time limit is not the core problem - we can afford to be more forgiving to these types of violations. The real problem is habitual parking violators who know the rule, but are willing to take the risk of getting a citation because it outweighs cost or inconvenience of parking in a more appropriate location. One solution to this problem is an escalating fine structure. This approach places an emphasis on repeat offenders, while still remaining friendly to first-time customers and visitors.

Fort Collins, CO has had an escalating fine structure in place for several years. Key elements of this program include:

- The first citation is considered a warning and is viewed as an "educational opportunity.
- First citations are often accompanied by a brochure or other information teaching the violator "how to park legally".
    - A similar program in Cheyenne, WY, adopted more of a "marketing approach". The citation is called a "Howdy Partner" and begins with "You must not be from around these parts..." The brochure goes on to explain how to parking legally, provides information on on-street parking time limits, the location of off-street lots for longer term parking options, etc.
- Initial fine amounts are kept low, but quickly ramp up for repeat offenders.
- An incentive is also provided for the prompt payment of citations. If paid within a 2 week period the fine is stated amount on the citation. If payment is not made within the designated time period the fine amount increases.
- Perhaps the most interesting and innovative aspect of this program is that it has a built-in rolling 180 day timeframe whereby, if the violator has not received another citation, the first citation comes off their record. Eventually, if the violator modifies their behavior, they can get back down to original state and the level of the fine is lowered. This focus on changing bad behavior is what makes this program most effective.

Action Items for Consideration:

- Evaluate the existing fine rates
- Evaluate the types, frequency, and location (if possible) of violations
- Update enforcement technology to enable faster and more streamlined collection of violation information (e.g. license plate recognition technology)
- Balance the appropriate amount of parking. Goals include not requiring too much parking that consumes excess land and creating visual blight, but also avoid spillover impacts associated with requiring too little parking.
- Update parking design standards including the placement of car charging stations.

Potential Sub-Strategies for Implementation:

- Review various enforcement technologies that would streamline and improve enforcement capabilities.

Documented Results:

A graduated fine structure that fines more heavily for repeat offenders has the effect of deterring people from making the same parking violation repeatedly. In addition, this type of structure, because it is more punitive towards repeat offenders, tends to educate parkers on the proper way to park.

Stakeholder Engagement:

Changes to the fine structure should be communicated to the public in advance. Communication materials can be used to educate the public on the proper ways to park.

Applicability/Similarity to Boulder:

This strategy can be applied to the City of Boulder through a re-evaluation of their fine structure. An escalating fine structure supports the City's goal managing the existing parking supply more

effectively and efficiently. A fine structure that can promote compliance with parking regulations enables the parking system to work more effectively.

Replicability: 

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

This strategy will require the City to reconsider their parking fine structure and update new policies regarding the fine structure.

Cost Implications: 

This strategy is relatively easy to implement since it does not require large investments in new technology or other infrastructure. It is a review of their rate structure for parking violations.

References:

- "Graduated Parking Fines", Donald Shoup. Los Angeles Times
- City of Claremont

Best Practice # 20

Strategy:

Develop an Enhanced Parking Enforcement Operations and Training Manual

Description:

Building on documented best practices from around the country, create a handbook/manual that documents current policies, procedures and practices and that is geared to train and support Parking Enforcement Officers in the effective and efficient performance of their required duties.

Action Items for Consideration:

- Document and assess existing policies and procedures
- Document departmental mission and key goals
- Define key duties and responsibilities by job class
- Define standards of conduct
- Define regulation regarding vehicle usage, radio protocols, enforcement systems, etc.

Potential Sub-Strategies for Implementation:

- Develop for use both as an operational manual and a training document.

Documented Results:

- Improves documentation of program operational policies and procedures
- Provides an effective tool for staff training and development
- Provides improved support for performance documentation and human resources issues if needed.

Stakeholder Engagement:

Low – This is primarily an internal document, however, having well defined policies and procedures can help in educating the general public as needed.

Applicability/Similarity to Boulder:

This strategy can easily be applied to the City of Boulder. It is important for any enforcement agency to have well-defined rules and regulations in a format that can updated annually.

Replicability: 

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its general nature.

Policy Implications:

This strategy will require the City to review their parking enforcement policies and procedures and a regular basis. Any new policies, practices and/or technology advances should be updated in the manual. Significant changes or deviations from past policies should be highlighted and sent to program administrators for review. Significant changes should be approved by the appropriate governing boards.

Cost Implications: 

This strategy is relatively easy to implement since it does not require large investments in new technology or other infrastructure. It is a review of their rate structure for parking violations.

References:

- Kimley-Horn has provided a sample Parking Enforcement Handbook as a starting point for the development of document specific to the City's program.

Best Practice # 21

Strategy:

Develop a parking enforcement program audit check-list for citation revenue, receivables management and permit operations

Description:

The development of a detailed audit checklist tool for assessing a municipal parking enforcement program is an identified program best practice. The goal is the establishment of audit standards and a process for reviewing and assessing compliance with Boulder specific rules, regulations and policies.

Action Items for Consideration:

- Ordering and Control of Citation Stock
- Control and Processing of Issued Citations
- Pursuit of Delinquent Citations
- Monitoring and Auditing of Parking Permit Operations

Potential Sub-Strategies for Implementation:

- Review various enforcement technologies as they impact program implementation and auditing.

Documented Results:

Development of an enforcement program audit checklist can provide an important quality control tool for assessing the detailed functions of a municipal parking enforcement program. Through

the development of audit standards, auditors and administrators can note whether or not the program complies with established best practices or if the result is unclear.

Stakeholder Engagement:

Low – This is primarily an internal document, however, having well defined policies and procedures can help in educating the general public as needed.

Applicability/Similarity to Boulder:

This strategy can easily be applied to the City of Boulder. It is important for any enforcement agency to have well-defined program auditing tools and standards that can updated annually or as new technology is implemented.

Replicability:

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

None. This practice is strictly an internal process improvement tool.

Cost Implications:

Low.

References:

- Kimley-Horn has provided a draft document for the City's review. This tool was developed by evaluating several municipal parking enforcement programs. City staff is encouraged to review and amend specific elements of this tool to ensure that Boulder specific rules, regulations and policies are incorporated to the greatest degree possible.

Pricing Strategies

Best Practice # 22

Strategy:

Performance-Based or Variable Pricing

Description:

Performance-based pricing programs structure their rates based on the parking demands of the area. Locations with greater demands will have a higher rate, whereas locations with less demand will have a lower rate. The intent is to help distribute the high demands experienced into areas with lower demands to balance the system and create more availability. The intent is also to encourage turnover in areas with high demands to create more availability along the curb. Rates can be changed as frequently as the City wishes to change and technology allows. Cities like Seattle evaluate and potentially change their rates on an annual basis, whereas Los Angeles changes its rates every 4-6 weeks.

Because of the amount of interest and activity nationally around this topic a separate whitepaper on this topic has been provided. The paper covers the following programs:

- Primary Programs Reviewed
  i. SFPark
  ii. LA Express Park
  iii. Washington DC Pilot Programs
  iv. NYC ParkSmart

- Secondary Programs Reviewed
  i. Albany, NY
  ii. City of Manchester, NH
  iii. Winnipeg, Manitoba, Canada
  iv. City of Berkeley Value-Priced Parking and Transit Program
  v. Redwood City, CA

Specific staff comments and questions related to this document are in the process of being addressed.

Action Items for Consideration:

- Conduct an occupancy and turnover counts of on-street parking spaces to determine locations of high and low demands (occupancy by block-face, time of day, and day of the week).
- Evaluate occupancy data, rates, time limits, and technology capabilities to identify appropriate ways to adjust the parking rates.
- Use all this information to determine the right price to obtain ~85% occupancy (an industry standard for optimal parking occupancy). The City may have to try a few pricing iterations to find the right level of pricing that helps to balance demands and improves turnover.

Potential Sub-Strategies for Implementation:

- Adjust parking rates appropriately to balance the parking demands throughout the system.
- Determine an appropriate frequency to review and adjust the rates. This may be dependent on the type of parking technology available and its capabilities (e.g. parking meters with sensors can collect real-time parking availability and relay that information and enable the City to adjust prices throughout the day based on the changing demands).
- Install new signage that clearly states the pricing rates and regulations.

Documented Results:

Results have shown that performance-based pricing encourages people to park in areas with more availability (lower rate) and improves turnover in areas with higher demands. Another result could be an increase in revenue. Not only because some rates may increase, but also because of increased turnover (more people paying meters) and increased compliance (because people may opt to park in areas with lower rates so they can park longer instead of parking illegally).

Stakeholder Engagement:

Because this strategy deals with rate adjustments for on-street parking, it should be communicated with the public openly and in advance of changes. It is critical that they understand the new system to prevent public pushback, to encourage proper use of parking, and educate the public on the intent of the change so that the changes have the greatest impact. Additionally, the public should be involved so they have an opportunity to provide their opinions on what is or isn't working and what their preferences are. The more the public and other community stakeholders are involved, the more successful the program will be. Additionally, communications should be handled through various media (websites, newspapers, social media, radio, etc.)

Applicability/Similarity to Boulder:

This strategy speaks directly to Boulder's goal of managing the existing parking supply more effectively and efficiently. The City is already using pay station meter technology and pay-by-cell to optimize payment options. These technologies could be leveraged or optimized to implement a performance-based pricing structure. However, this strategy might require a paradigm shift in how the City manages parking and some back-end management adjustments to allow the City to collect and analyze meter data in a way that is conducive to setting prices based on demands.

Replicability: 

This strategy is able to be replicated for the City of Boulder, however, the technology currently in use may have to be modified slightly to allow for this type of pricing structure.

Policy Implications:

This strategy will require the City to reconsider their parking rate structure and update new policies regarding the rate structure.

Cost Implications: 

Because the City already has more advanced meter technology, the investment in technology may not be substantial. However, there may be costs with expanding the use of the technology and setting up programs on the back-end of the meter data collected in order to analyze parking conditions and change rates appropriately.

References:

- City of Seattle, Department of Transportation
- City of Seattle Performance-Based Parking Pricing Study (2011)
- SFPark Pilot Project Evaluation, SFMTA (2014)
- Washington, D.C. District Department of Transportation. Performance-Based Parking Pilots
- LA Express Park
- Redwood City, CA

Best Practice # 23

Strategy:

Progressive On-Street Parking Pricing

Description:

Rates in a progressive pricing structure are determined by the length of time a person remains parked. Instead of a flat rate per hour (e.g. $1 per hour with a 2-hour time limit), rates in a progressive pricing program elevate the longer a vehicle is parked. For instance, the first hour might be $1, but the second hour may be $2, and so on. The intent is to provide flexibility, by allowing those who want to park longer to be able to do so as long as they pay, while also creating more availability. The elevated rate structure deters people from parking long periods of time, thus creating more availability.

Action Items for Consideration:

- Conduct an occupancy and turnover counts of on-street parking spaces to determine locations of high and low demands (occupancy by block-face, time of day, and day of the week).
- Evaluate occupancy data, rates, time limits, and technology capabilities to identify appropriate ways to adjust the parking rates.
- Use all this information to determine the right price to obtain ~85% occupancy (an industry standard for optimal parking occupancy). The City may have to try a few pricing iterations to find the right level of pricing that helps to balance demands and improves turnover.

Potential Sub-Strategies for Implementation:

- Adjust parking rates appropriately to balance the parking demands throughout the system.
- Install new signage that clearly states the pricing rates and regulations.

Documented Results:

Results have shown that progressive pricing structures encourage turnover of vehicles due to the graduated rate structure (people don't want to have to pay more so they don't park for as long). This strategy is effective in managing the long-term parkers that can abuse a parking system by occupying priority spaces (spaces near destinations) for long periods of time (typically an issue seen with employees) and leaving no available parking for customers. The progressive rate structure allows people to park for as long as they want, however, the longer they park the higher the rate to park, and people are disinclined to continue to pay high fees for parking unless necessary. Another result is a potential increase in revenues. Not only because of the increase in rates for long-term parkers, but also because of increased turnover (more people paying the meters).

Stakeholder Engagement:

Because this strategy deals with rate adjustments for on-street parking, it should be communicated with the public openly and in advance of changes. It is critical that they understand the new system to prevent public pushback, to encourage proper use of parking, and educate the public on the intent of the change so that the changes have the greatest impact. Additionally, the public should be involved so they have an opportunity to provide their opinions on what is or isn't working and what their preferences are. The more the public and other community stakeholders are involved, the more successful the program will be.

Additionally, communications should be handled through various media (websites, newspapers, social media, radio, etc.)

Applicability/Similarity to Boulder:

This strategy speaks directly to Boulder's goal of managing the existing parking supply more effectively and efficiently. The City is already using pay station meter technology and pay-by-cell to optimize payment options. These technologies could be leveraged or optimized to implement a progressive pricing structure. However, this strategy might require a paradigm shift in how the City manages parking and some back-end management adjustments to allow the City to collect and analyze meter data so they can gauge how the progressive price structure is working (e.g. is it encouraging turnover? do the rates need to be adjusted higher or lower and during which hours of stay?).

Replicability: 

This strategy is able to be replicated for the City of Boulder, however, the technology currently in use may have to be modified slightly to allow for this type of pricing structure.

Policy Implications:

This strategy will require the City to reconsider their parking rate structure and update new policies regarding the rate structure.

Cost Implications: 

Because the City already has more advanced meter technology, the investment in technology may not be substantial. However, there may be costs with expanding the use of the technology and setting up programs on the back-end of the meter data collected in order to analyze parking conditions and change rates appropriately.

References:

- Albany Parking Authority
- "Implementing On-Street Market Based Rates", Presentation to IPI by Executive Director Albany Parking Authority (2012)
- Berkeley, CA (Elmwood District)

Best Practice # 24

Strategy:

Parking Taxes

Description:

There are a variety of types of parking taxes. Commercial parking taxes are a special tax on parking rental transactions. Per-space parking levies are a special property tax applied to parking facilities. Commercial parking taxes discourage the pricing of parking and concentrate impacts in a few areas. Per space levies distribute cost burdens more broadly, encourage property owners to manage parking supply more efficiently, and reduce sprawl. Although per-space levies are more challenging to implement they tend to support more strategic planning objectives.

Many experts advocate various types of transportation pricing reforms, including cost-based fees and taxes for the use of roads and parking facilities (“Market Reforms,” VTPI,

2005). Such reforms can provide double dividends by raising revenues and helping to achieve other planning objectives such as reducing traffic congestion, air pollution and sprawl.

Vehicle parking is particularly appropriate for reform (Shoup, 2005). Current parking planning practices tend to favor generous parking supply and minimal parking prices, which have unintended and undesirable consequences: they increase development costs, reduce housing affordability, cause dispersed land use patterns (commonly called sprawl), and increase automobile travel which exacerbates various problems including traffic congestion, roadway costs, crashes and pollution emissions. As a result, many professional organizations and planners recommend parking planning and management reforms (Litman, 2006a).

One such reform is to tax parking activities and facilities. Parking taxes can raise funds and help achieve various planning objectives, including more compact development and increased use of alternative modes (Feitelson and Rotem, 2004). Because excessive parking supply has so many negative impacts such taxes can provide significant benefits, particularly in growing urban areas where problems are greatest.

There are also practical reasons to tax parking. Such taxes are an appropriate source of revenue for local governments and public entities such as port districts and business improvement associations; they impose costs on property owners and motorists in specific areas and so can be considered a fair way to finance local transport services.

Types of Parking Taxes:

- Commercial Parking Taxes
  - Many jurisdictions impose a special sales tax on commercial parking transactions, called an ad valorem tax.

- Per Space or Area Levies
  - Some jurisdictions apply special taxes (called a levy) on parking facilities, based either on the number of spaces or their surface area. Such taxes can be structured to support specific planning objectives, such as applying a levy only on unpriced parking, to encourage property owners to price parking.

Action Items for Consideration:

- The tax base should be broad and well defined. A broad tax base spreads the financial burden and does not give certain groups a competitive advantage. For example, it is most equitable to tax publicly owned as well as private parking facilities.
- Before imposing special parking taxes, local governments should increase their own parking prices to market rates. Commercial operators tend to be more accepting of a parking tax if governments are already maximizing income from other parking-related revenue sources, such as meters and enforcement of parking regulations.
- Taxes and fees should be structured to avoid undesirable land use, travel or economic impacts, such as increased sprawl or reduced downtown competitiveness.
- Parking tax reforms should be part of overall parking and mobility management programs and coordinated between jurisdictions in a region.
- Exemptions and discounts should be well defined and audited to insure they apply as intended.

Potential Sub-Strategies for Implementation:

- If possible, require parking suppliers to pass taxes on to motorists, rather than absorb it.

- Enforcement should be fair, friendly and effective.
- Taxes should be structured for efficient compliance and auditing. When implementing a commercial parking tax, operators should be required to use a ticketing system that provides receipts and creates secure transaction records suitable for auditing.
- Establish an evaluation program, with before-and-after analysis, to determine the taxes impacts on parking supply and pricing, economic activity, traffic, and spillover problems.

Documented Results:

- Commercial Parking Taxes
  - The City of San Francisco imposes a 25% tax on all commercial off-street, nonresidential parking transactions ("any rent or charge required to be paid by the user or occupant of a parking space"). Revenues are divided between the city's general revenue, public transportation and senior citizen funds.
  - The City of Pittsburgh imposes a 31% parking tax (increased to 50% in 2005), the highest rate in the U.S. Parking operators indicated that they had been able to pass the majority of the tax onto the users, but had absorbed some of the tax themselves.
- Per Space or Area Levies
  - In Sydney, a Parking Space Levy of AU$800 annual per stall is currently applied to parking in the central business district (CBD), and AU$400 per stall at other business districts. The levy applies to all privately owned, non-residential, off-street parking. It is prorated for parking facilities that are only used occasionally, such as church parking lots; property owners must maintain daily records indicating how often such space is used. The levy raises more than AU$40 million annually, which is dedicated to transportation projects and cannot be used for operating expenses.
  - Vancouver, British Columbia, TransLink, the Vancouver, British Columbia regional transportation authority which builds and operates roads, transit facilities, bicycle facilities and other transport services, implemented a Parking Site Tax in 2006. The initial rate is $1.02 annually per square meter of non-residential parking facility, typically $25-$40 per space. Assessment, collection and enforcement of the tax utilizes the existing property tax framework, operated by BC Assessment, a provincial agency. The agency used aerial photos, digital mapping, municipal records and site visits to develop an inventory of non-residential parking facilities in the region. Exemptions include:
    - On-street parking.
    - Most buildings exempt from general property taxes (schools, churches, synagogues, etc.).
    - Parking facilities used for vehicle retail and rental business inventory storage, impounded vehicles, trailers of tractor-trailer units, vehicle servicing and fueling.
    - Parking facilities owned by TransLink (including Park & Ride lots).
    - Ferry loading queuing

Stakeholder Engagement:

Stakeholders, such as commercial parking operators, should be consulted to insure that regulations, administrative procedures, and enforcement policies are efficient and fair.

Applicability/Similarity to Boulder:

Leveraging a parking tax to support other multi-modal alternatives seems very well aligned with Boulder's overall transportation and climate commitment goals. However, taxes are never popular and significant public process would be required.

Replicability:

This strategy can be applied in a number of ways to be tailored to the specific goals of community. While the concept can be replicated, the key issues will be community acceptance and approval. This tactic is likely the most politically sensitive of all the best practice options, but it also has the potential to contribute positively to a wide range of community goals.

Policy Implications:

This strategy will have significant policy and political implications. Defining the specific type of tax, the reasons for the tax, the level of taxation and how the potential tax revenues would be used will all be key policy decisions if this strategy is advanced.

Cost Implications:

Costs for this strategy would involve investing significant council and administrative time to develop and implement the campaign to achieve the support needed to pass the legislation authorizing the new tax. Additional costs would be incurred to implement and collect the tax revenues. Ultimately, however, the tax would generate significant revenues to off-set implementation costs.

References:

- Parking Taxes, Evaluating Options and Impacts - Todd Litman, Victoria Transport Policy Institute

Parking Code Strategies

Best Practice # 25

Strategy:

Review and update of City adopted parking codes including parking generation rates

Description:

Identify the existing parking requirements within the City and identify potential parking code strategies to provide updated standards consistent with current and projected development trends, opportunities for parking reductions, parking placement while increasing the availability (usability) of land.

There is generally an economic disadvantage to providing too much parking (underutilization of properties, inefficient land use patterns) as there is with too little parking (actual and/or perceived lack of safe, convenient parking). Providing optimal parking that is convenient, safe and efficiently utilizes valuable land can enhance economic vitality and livability.

Action Items for Consideration:

- Review existing Parking Standards (required parking rates; minimum and maximum)
- Review of shared parking provisions including off-site and on-street parking.
- Review bicycle parking requirements.
- Review the City's existing land use and zoning standards (uses).
- Identify areas for Transit Oriented Development (TOD), Land Use and Parking Overlays.

Potential Sub-Strategies for Implementation:

- Amend City parking standards from zoning based to land use based.
- Provide simplified, generalized listing of land use categories (broad based) versus use specific standard; include review of minimum and maximum parking standards.
- Provide development incentives for targeted parking standards and programs (e.g., designating a percentage of provided parking to public parking needs)(incentivized zoning and/or performance zoning standards).
- Simplification of the City's current code (ease of understanding and application of standards).
- Evaluate the placement and connectivity of parking spaces/areas to buildings and facilities.

Documented Results:

- Efficient use of developable land
- Improved application of parking standards
- Reduced variance and/or modification requests for parking reductions
- Code reflects current development practices and uses
- Encourages use of transit and alternative transportation measures
- Reduced storm water needs through reduced surface parking and/or implementation of LID measures
- Require appropriate amount of parking with goals of not requiring too much and consuming land, and creating visual blight, but also avoid spillover impacts associated with requiring too little parking.

Stakeholder Engagement:

This strategy would require outreach with the public, including targeted stakeholders including large land holdings, major employers and community/educational services, to identify future development, opinions on existing parking and other customer comments.

Applicability/Similarity to Boulder:

This strategy is applicable to Boulder because it involves updating the City's parking code which has typically had minor or targeted amendments as compared to a complete parking code review. It can and should be tailored to meet the specific needs of the Boulder community. This strategy supports City goals of economic development, preserving and improving community character, and improving the City's transportation network.

Replicability: 

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

To implement a change in the City's parking codes, will require the City to update their policies.

Cost Implications:

This strategy involves effectively leveraging already available community resources. The main cost of implementation might be in the stakeholder outreach, education, and communication, as well as staff resources (time).

References:

- City of Fort Collins, CO
- City of Arlington, VA (MobilityLab)
- City of Ann Arbor, MI
- City of Largo, FL
- Eugene, OR
- Portland, OR
- Madison, WI

TDM Strategies

Best Practice # 26

Strategy:

Explore "First and Last Mile Strategies" as Part of an Overall Mobility Management Strategy

Description:

First and last mile strategies are typically designed to help transit users access transit or final destinations. Strategies vary widely from infrastructure to policy to education. Successful programs will improve the user experience by supporting intuitive, safe and recognizable routes to and from transit stations/stops. There are no set standards but rather a menu of options. Common improvements include: intersection crossing improvements (crosswalks, bulb outs, raised crossings, scramble crossings, and mid-block crossings), signage (way finding, motor vehicle signalization/signage, real-time transit signage), pedestrian prioritized signal timing, lighting and streetscape improvements (street furniture and trees/landscaping), freeway underpass/overpass improvements, enhanced transit stops, sidewalks (completing gaps, surface improvements, widening, short cuts), using street space for bicycle and transit lanes, providing priority parking or waiting areas for "green" transportation, car and bike share stations/parking, carpool and vanpool parking, bike parking, and trail/off street path access.

Action Items for Consideration:

Consider reviewing efforts by the city of Los Angeles, which uses GIS mapping to determine missing pieces in the overall travel system. Maps of existing transit stops show 1/4- and 1/2-mile

radii as well as existing transportation networks such as roads, transit routes, bus routes, sidewalks, accident locations, land use, and other pertinent layers. The layers have been used to determine what infrastructure improvements to utilize and how best to make transit stops easy to reach. If a strategic first and last mile program is pursued, a funding source would need to be identified.

Documented Results:

Initial program review did not yield information on specific outcomes of first and last mile strategies in terms of their impact on transit ridership and community mobility. Impacts would be likely to vary significantly depending on the strategy implemented. For example, shuttle services combined with subsidized transit passes could have a significant impact on transit ridership whereas installation of short lengths of sidewalk may have relatively limited impacts.

Stakeholder Engagement:

Integrate with larger community planning and transportation/transit development initiatives. Engage the public as well as private development sector to promote common goals and benefits of first and last mile strategies.

Applicability/Similarity to Boulder:

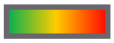
First and last mile strategies tie in with Boulder's high bicycle and transit ridership and would be helpful in capturing additional transit riders. The strategies are important to encourage transit, bicycle, and pedestrian commuting. The infrastructure, policies, and educational components needed for a complete system are important throughout the city, not only near transit stations.

Replicability: 

Examples of complete streets (pedestrian, bicycle, transit) policies and infrastructure can be found nationwide and internationally. Most strategies should be easily replicated in Boulder.

Policy Implications:

First and last mile strategies support broader policy directives related to clean air, health, and economic sustainability. By improving transit access and effectiveness, more people will likely opt to use transit, which in turn will reduce vehicle miles traveled and greenhouse gas emissions, integrate physical activity into daily commute patterns, and improve economic vitality by connecting people locally and to regional attractions/jobs.

Cost Implications: 

Vary widely depending on measures implemented. Infrastructure improvements can be expensive while signage and educational efforts can be relatively inexpensive.

References:

- "First Last Mile Strategic Plan: Path Planning Guidelines": Los Angeles County Metropolitan Transportation Authority - Metro, 2013
- Pedestrian and Bicycle Information Center
- "Intermodal Transportation Planning and Development: A closer look at linking transit to bicycling and walking": Pedestrian and Bicycle Information Center Case Study for Tucson, Arizona.

Best Practice # 27

Strategy:

TDM Districts and Trip Reduction Ordinances or Trip Generation Allowance

Description:

TDM districts typically use overlay zones or other zoning requirements to encourage or enforce more stringent development regulations specific to TDM. The regulations can require employers and property owners to participate in TDM programs, implement TDM programs, and/or fund TDM programs. Funding is often collected through a property tax or its equivalent.

Action Items for Consideration:

Consider reviewing the following: St Louis has two overlay zones created specifically for TDM measures. Each of these zones have requirements for certain developments to provide various TDM measures such as a plan and outlined strategies. Furthermore, developments within these districts must pay a fee to help manage the district and TDM operations. Minneapolis has a pedestrian orientated overlay district. Within this district are two areas that require TDM plans for developments of certain sizes. Furthermore, all developments within the district must comply with requirements for bicycle parking and pedestrian infrastructure to facilitate pedestrian access, safety and circulation. San Mateo has a TOD district that promotes TOD development including enhanced pedestrian, bicycle, and transit facilities. Additionally, the TOD district requires developments of a certain size to create TDM programs that must include both short- and long-term trip and parking reduction goals. The TOD district details specific alternatives for TDM implementation, including transit pass subsidies, bicycle parking, and parking cash-out programs.

Documented Results:

Little data has been collected on the vehicle trip and parking reduction impacts associated with TDM districts. It can be difficult to separate TDM impacts from external variables such as walkability, level of transit service, density, etc.

Stakeholder Engagement:

Integrate with larger community planning and transportation/transit development initiatives to develop areas and methods to implement TDM strategies. Engage the public as well as private development sector to promote common goals.

Applicability/Similarity to Boulder:

Determining whether to create TDM districts, TMA's, zoning overlay districts, or other unique approaches will require Boulder to analyze current and proposed TDM implementation goals and outcomes.

Replicability: 

There are several unique examples of how TDM measures are enforced in specific areas, as outlined. Additionally, Boulder Junction offers an example of a local TDM district that can be replicated.

Policy Implications:

Creating TDM districts, TMA zoning overlay districts, or other unique approaches will require different policy approaches and regulation. However, enhancing TDM strategies, outcome, and enforcement is a common policy thread within these.

Cost Implications: 

Low to medium depending on city staff time used to develop new policies and monitor compliance.

References:

- City of St Louis Zoning Code. Article 4, Zoning Districts, Division 9 Travel Demand Management District, Section 36-321.
- City of Minneapolis Code of Ordinances. Chapter 551 of the Minneapolis Code of Ordinances relating to Zoning Code: Overlay Districts, Article II: Pedestrian Oriented PO Overlay District.
- City of San Mateo Zoning Code. 27.90 TOD District - Transit Oriented Development.

Best Practice # 28

Strategy:

Explore the Concept of Increasing Availability by Decreasing Demand

Description:

This strategy focuses on what can be done to encourage employers and existing property owners to implement TDM programs. This is separate from TDM regulations for new development, a best practice area that has already been reviewed in greater detail by UrbanTrans and Kimley-Horn. Employers and property owners can be encouraged or mandated to implement or participate in TDM programs. Incentives and requirements can be city-wide or geographically limited. California has been a leader in the implementation of mandates that require employers to implement or participate in TDM programs. Many other communities make TDM services available for free to employers to encourage them to implement TDM programs. This is already done in Boulder and is a common practice within the Denver region.

Action Items for Consideration:

Consider reviewing the following: The Bay Area Air Quality Management District recently passed Regulation 14, Rule 1, which requires employers with 50 or more employees to provide one of three options to employees: (1) pre-tax transit and vanpool fare purchases, (2) employer-paid transit and vanpool fares up to $75, or (3) employer provided transit service. Maryland and Minnesota both offer tax incentives to encourage employers to subsidize transit costs. The Maryland tax credit is worth up to $50 per employee per month. The Minnesota tax credit is worth up to 30% of the employer's expenditure on bus passes and vanpool fares.

Documented Results:

The Bay Area program is launching this month and no specific outcomes are yet known. The program has resulted in a significant increase in employer participation in the regional 511 program. No data were immediately available on the impacts of incentives on employer participation and funding of TDM programs. Data are available regarding the impacts of employer subsidized transit passes and TDM programs on travel choice, but data have not been collected regarding the impacts of government programs/mandates on employer uptake/funding of TDM programs.

Stakeholder Engagement:
Implementation of policies would require close coordination with employers and property owners. Financial incentives will require the identification of city funding sources or lobbying efforts to encourage state action.

Applicability/Similarity to Boulder:

The identified best practices are not directly applicable to Boulder. Implementation of similar practices would likely require action by the state or region. The free provision of TDM services to employers is already available. The Boulder Carbon Tax could be a funding source for subsidies to employers.

Replicability: 

With sufficient local, regional, and state support all examples could be implemented.

Policy Implications:

Depending on the action taken, significant policy changes could be required.

Cost Implications: 

Current TDM programs could be expanded at a low cost depending on the degree of expansion. The provision of subsidies to encourage employer TDM programs could be expensive.

References:

- TDM and Telework Financial Incentives
- Regulation 14 Rule 1 Guidance

Best Practice # 29

Strategy:

Local Government's Role in Promoting Car Share

Description:

Car sharing is a model of car rental where people rent cars for short periods of time, often by the hour. Car share is typically most successful in high-density residential and commercial locations. There are an estimated 800,000 car share members in the United States. Cities have promoted car share through informal partnerships, marketing assistance, administrative assistance, the provision of parking, and grant/funding support.

Action Items for Consideration:

The following programs could be reviewed for additional information: Brookline and Cambridge, MA both provide marketing support; San Francisco requires some developers to make car share spaces available; Denver provides incentives to developers to encourage the provision of private parking spaces; Denver and Hoboken have innovative programs to provide on-street parking spaces to car share providers; Arlington County, VA encourages car share through its TDM program and the inclusion of parking spaces on its transportation maps.

Documented Results:

Car Share programs have been found to reduce car ownership and parking demand. They can also serve as a “last-mile solution”. One car share vehicle can typically remove four to five vehicles from the road. Car share's impacts on vehicle miles traveled are less clear.

Stakeholder Engagement:

Local government, car share operators, and communities must all work together when crafting car share policies, especially policies that provide parking locations in the public right of way.

Applicability/Similarity to Boulder:

Car share is applicable to Boulder because of its high pedestrian and transit use as well as the city's goals for environmental stewardship and traffic reduction. Successful examples already exist. Any government efforts would be likely to increase utilization and meet success.

Replicability: 

Many examples of government agencies promoting car share can be implemented in Boulder. Examples that are linked to zoning would need to be reviewed to determine their legality in Boulder and Colorado.

Policy Implications:

Depending on the strategies implemented, parking policies and regulations will need to be updated. Additionally, certain policies may require updates to the zoning code.

Cost Implications: 

Low to High depending on funding and support provided by the City.

References:

- "TCRP Report 108: Car Sharing Where and How it Succeeds": Published in Washington DC by the Federal Transit Administration and the Transportation Research Board, 2005.
- "Contemporary Approaches to Parking Pricing: A Primer": U.S. Department of Transportation Federal Highway Administration 2012
- City and County of Denver

Best Practice # 30

Strategy:

Parking Cash-Out Programs

Description:

Parking cash out is a program that allows employees to opt out of having a parking space and instead receive compensation. The employer who owns or leases a space pays the employee not to park. The employee can then use this money to purchase transit fares or it can be kept as cash. An update to the Internal Revenue Code in 1998 supports parking cash out programs by allowing employers to offer commuters the option of taxable cash instead of tax-exempt subsidies for parking, transit, or vanpool. The federal tax code states "for 2014, the monthly limit on the amount that may be excluded from an employee's income for qualified parking benefits is $250. The combined monthly limit for transit passes and vanpooling expenses for 2014 is $130".

Employer costs are likely to increase slightly with cash out programs as employers must pay employment taxes on the cash employees receive if they do not use their payments for tax-deductible transportation expenses. Administrative costs will also be incurred but could

potentially be offset by reductions in travel allowances or parking subsidies (i.e., charging employees who decline a cash-out offer a small fee for parking).

Action Items for Consideration:

Additional research could be conducted on existing cash-out programs. The states of California and Rhode Island have laws that require certain employers to offer cash-out programs. Both state laws effect employers with 50 or more employees. California's law is applicable only to leased parking spaces and does not affect employers that own their parking. Rhode Islands' law does not require a cash payment but rather a free transit pass in lieu of a parking space.

Documented Results:

Analysis by Shoup found that parking cash-out programs in California reduced drive-alone trips from 76 percent to 63 percent of total commute trips at surveyed employers. A model created by De Borger and Wuyts using Belgian data to evaluate cash out estimated that cash out would reduce car commuting by 8.5 percent.

Stakeholder Engagement:

Work with city and business leaders to develop a policy that supports traffic and vehicle reduction goals but does not place too much burden on employers. Identify the administrative burden that could be placed on employers and develop programs to help overcome those burdens.

Applicability/Similarity to Boulder:

Parking cash out programs support Boulders alternative transportation system by encouraging employees to utilize transit and bicycling rather than driving.

Replicability: 

Existing laws that require cash out are at the state level making them less replicable in Boulder. However, opportunities likely exist to implement programs to encourage rather than mandate cash out. Additional research would be necessary to determine the legality of requiring cash out.

Policy Implications:

Parking cash out supports policies of traffic and vehicle reduction as well as goals to increase transit and bicycle ridership. Excessive burdens to employers must be considered however.

Cost Implications: 

Low to medium depending on enforcement and policy decisions.

References:

- "Contemporary Approaches to Parking Pricing: A Primer": U.S. Department of Transportation Federal Highway Administration 2012
- "Section 132(f) Qualified Transportation Fringe Benefit – Commuter Parking and Transit Benefit Plan Document"
- City of Santa Monica
- "Congress Okays Cash Out": Donald Shoup. The Institute of Transportation Studies at the University of California, Los Angeles, CA. 1998
- "California's Parking Cash Out Law" California Environmental Protection Agency
- State of Rhode Island Statute 37-5-7.1

Best Practice # 31

Strategy:

Adopt a Research and Educational Mission Relative to Promote All Modes of Transportation

Description:

Using the "Mobility Lab" model as guide, develop a robust TDM outreach, research and educational program to promote and continually reinforce multi-modal options. "Mobility Lab" is a very impressive component of the Arlington County Virginia Commuter Services program. It is perhaps the most advanced and comprehensive TDM program in the country and one which the City of Boulder could emulate in a number of ways. A review of the Mobility Lab program follows.

Overview:

- Mobility Lab is a leading U.S. voice of "transportation demand management" – moving people instead of cars – and works to create a shared national voice with clear calls to action from TDM agencies across the country.
- One of Mobility Lab's primary roles as a start-up think tank is to measure the impacts of TDM services in Arlington County, Virginia – frequently cited as a leader in the industry.
- Mobility Lab believes – through storytelling, original research, events, and strategic partnerships – we can effectively gain funding and prestige for a traditionally underfunded and little-known industry.
- TDM helps people use transit, ridesharing, walking, biking, and telework. It is cost-effective in guiding the design of our transportation and physical infrastructure so that alternatives to driving are naturally encouraged and our systems are better balanced.
- TDM thus underlies most of the important new initiatives of today: transit-oriented development, complete streets, walkable activity centers, livability and sustainability initiatives, and integrated corridor management.

Mission:

Mobility Lab nurtures innovations to a fundamental requirement of human life: transportation. It is a place of collaboration, education, and continuous improvement for moving people in more healthy, efficient, and sustainable ways.

Action Items for Consideration:

Mobility Lab is based on three pillars. Research. Collaboration. Communication:

- Research about how Arlington's transit-oriented development works. Mobility Lab is embedded within the living laboratory that is Arlington County Commuter Services. It produces and disseminates cutting-edge original transportation research that details why Arlington's roads are amazingly free of the traffic that clogs so many urban areas.
- Collaboration to bring about innovation. Mobility Lab functions as a convener and engager of top minds on transportation in the D.C. region, nationally, and internationally. They regularly hold online collaborations and events like Hack Days, Transportation Camp, and educational symposiums on topics ranging from sustainability to real-estate development and beyond.
- Communication about best practices. Mobility Lab is a leading online source for how communities can improve the lives of its citizens by making better transportation choices

than the ones our society has been trained to embrace. Mobility Lab shares research, builds databases of readable, entertaining, and usable best practices.

More information is available at: http://mobilitylab.org/about-us/#sthash.6BZ2aoni.dpuf.

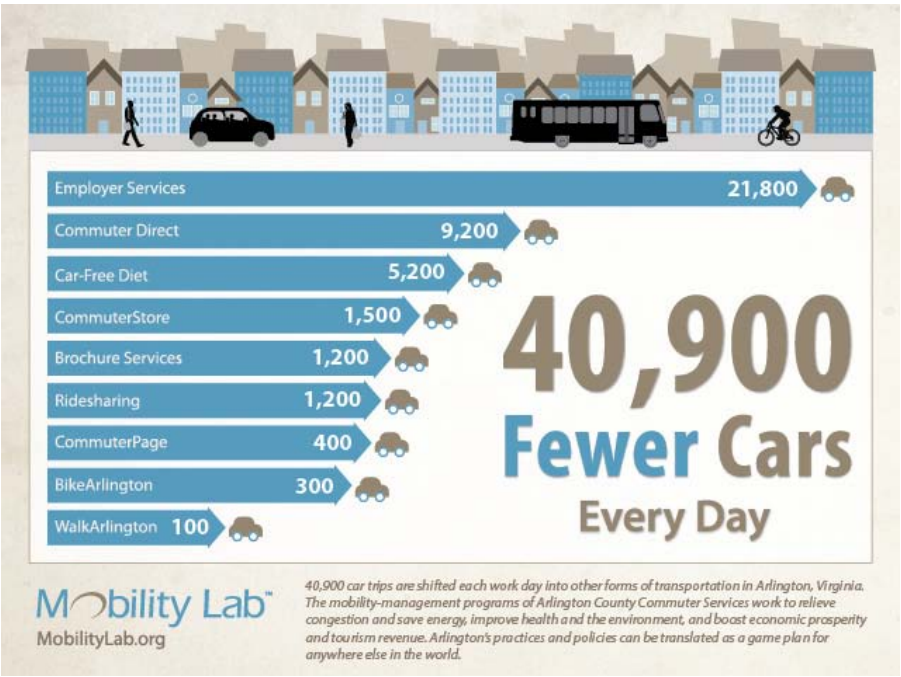
Documented Results:

One of Mobility Lab's primary roles is to measure the impacts of Arlington County Commuter Services, showing that what we do works, and can be translated as a game plan for anywhere else in the world.

ACCS produces annual reports that provide further information about their program results. Links to several of these annual reports are provided below:

Annual Reports

- ACCS Making an Impact 2012
- ACCS Making an Impact 2011
- ACCS Making an Impact 2010
- ACCS Making an Impact 2009
- ACCS Making an Impact 2008
- ACCS Annual Report 2005



Mobility Lab tracks the actions of ACCS programs. Here are the latest numbers, updated in July 2014: - See more at: http://mobilitylab.org/about-us/#sthash.6BZ2aoni.dpuf

Below is data from Fiscal Year 2011 (July 2010 through June 2011):

- 35,000,000 dollars in sales at CommuterDirect.com and at The Commuter Store®
- 24,524,604 dollars in fare media sales at the Commuter Information Center $9,331,370 dollars' worth of sales at The Commuter Store®

- 1,920,000 visits to CommuterPage.com® family of websites, including ArlingtonTransit.com
- 1,000,000 trips on Capital Bikeshare in year 1
- 600,000 transit timetables distributed
- 248,984 page views were logged at WashingtonAreaBikeForum.com
- 205,000 customers through The Commuter Store® doors
- 153,377 individual transactions and 986 corporate transactions processed at CommuterDirect.com.
- 131,397 employees reached through 661 employers by Arlington Transportation Partners
- 116,578 page views logged by 38,941 unique visitors at BikeArlington.com
- 79,750 tons of CO2 removed from the air every year
- 60,000 redesigned four-color Walkabouts brochures printed with updated text and maps for 18 Walkabout routes
- 50,000 Arlington County bike maps distributed
- 42,000 issues of Solutions newsletters and 1,160 e-Solutions issues distributed
- 29,000 phone calls at our call center
- 27,110 phone calls answered at the Commuter Information Center
- 19,111 people at 20 WalkArlington events including walking tours, workplace walks, health fairs, environmental expos, and school programs.
- 16,185 people at 53 Car-Free Diet events
- 10,000 people at 39 BikeArlington events
- 6,000 people reached at 48 transportation fairs
- 3,268 followers of Car-Free Diet on Twitter
- 3,237 pledges to go car-free
- 2,000 bikers checked in at Bike to Work Day rest stops in Arlington
- 1,000 bike light sets given away
- 307 Car-Free Diet Retail Partners
- 244 Personalized Commute Planners distributed
- 100 ART bus stops repaired or replaced due to vandalism, storms or accidents
- 48 transportation fairs attended reaching over 5,000 commuters.
- 42 site inspections of buildings for compliance
- 32 Redefine Your Commute campaign events conducted reaching over 6,000 commuters
- 20 walk events attracting 19,111 participants
- 14 new site plan properties assisted to comply with TDM requirements
- 10 Arlington businesses awarded the “Bicycle Friendly Business” status by the League of American Bicyclists
- 9 Confident City Cycling classes organized by BikeArlington with 169 attendees
- 6 TDM compliance reviews for residential site plan buildings completed
- 2 Car-free Diet Skeptics who went 30 days each without a car that was followed by thousands of people on a reality series show
- 1 new The Commuter Store®kiosk in Ballston
- See more at: http://mobilitylab.org/about-us/#sthash.q2edO8iV.dpuf

Stakeholder Engagement:

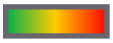
Mobility Lab also serves as a meeting place and the home of idea generation for:

- Transportation Techies DC monthly “Meetups”

- Technology-development fellowships such as the one that created TransitScreen
- Virginia Tech and American University transportation-focused students
- Crowdsourcing hackers for bike trip planning software and real-time transit screens
- Fairfax County (Virginia) Connector busline executives, and
- Roanoke (Virginia) transportation planners, to name a few.
- See more at: http://mobilitylab.org/about-us/#sthash.6BZ2aoni.dpuf

Applicability/Similarity to Boulder:

Developing in a program similar to Mobility Lab, while a daunting endeavor and a significant investment, seems a natural next step for Boulder and one that is very strongly aligned with AMPS program as well as overall community goals.

Replicability: 

While programs like Mobility Lab and Portland's Metro (which has also adopted a similar education, research and outreach mission) provide good models, the effective implementation of such a program is a very difficult and potentially expensive task. However, the paybacks could also be significant in terms of congestion relief, progress toward climate commitment and transportation master plan goals.

Policy Implications:

This strategy seems very well aligned with Boulder's stated policy objectives, but it would need a significant funding mechanism. The parking tax strategy listed earlier in this document could provide that funding source.

Cost Implications: 

Low to High depending on level of program development adopted.

References:

- Idea for Smarter Transit Fares Wins George Mason Competition - See more at: http://mobilitylab.org/tech/#sthash.VW7XCmBb.dpuf
- Hitchhiking Goes High Tech: The Story Behind CarmaHop's Upcoming Launch - See more at: http://mobilitylab.org/tech/#sthash.VW7XCmBb.dpuf
- The Technology Behind a New Kind of Travel Planning - See more at: http://mobilitylab.org/tech/#sthash.VW7XCmBb.dpuf
- Arlington County Building High-Tech Commute-Planning Software - See more at: http://mobilitylab.org/tech/#sthash.VW7XCmBb.dpuf
- An Open Data Standard Would Help Public Discover Bikesharing - See more at: http://mobilitylab.org/tech/#sthash.VW7XCmBb.dpuf
- Techies Work to Merge Data From Multiple Transit Agencies - See more at: http://mobilitylab.org/tech/#sthash.VW7XCmBb.dpuf
- Examining Mobility Innovations in the Sharing Economy - See more at: http://mobilitylab.org/tech/#sthash.VW7XCmBb.dpuf

More detail about the Mobility Lab program is provided in a separate whitepaper.

District Management

Best Practice # 32

Strategy:

Livable Neighborhood Plans

Description:

1. West End District Development Plan (2013): The West End is a livable neighborhood that is similar in size to Boulder with 43,000 residents, 23,000 jobs and millions of visitors each year. It is a community that features a range of housing, land use, heritage buildings, transportation options, and amenities. Because demand for new development is growing, City staff have prepared a community plan to ensure that future growth in the West End meets the needs of the community. In 2013, community members supported a set of emerging and refined plan directions, including the West End Community Values, which helped shape the community plan. The plan focuses on neighborhood character, housing, local business, heritage, and transportation and parking. Watch the project overview video.
2. Greenest City 2020 Action Plan
3. Neighborhood Champions Network (NCN)

Applicable Sub-Categories:

- Building Partnerships between Local Governments & Non-Profit Organizations
- "Greening Downtown": Strategies for Institutionalizing Sustainability
- Guidelines for Expanding or Enhancing Existing Districts
- Important of District Context and Identity

Action Items for Consideration:

- Consider an Expert Panelist from the City of Vancouver

Potential Sub-Strategies for Implementation:

- Additional research into the formalized Neighborhood Champions Network (NCN) as a potential model for a formalized public participation process.
- Strong consideration should be given to the communication strategies that were used to provide information to the public about the plan's goals, implementation strategies and accomplishments. Both online and print materials were created in a visually-appealing, easy to understand design that is consistent among mediums and gives the project a high-quality, professional feel.
- Consider cost implication matrix model as a format for sharing information about public and private investment

Documented Results:

- West End District Plan was approved by City Council in 2013.

- Results from the NCN's work on the West End Plan can be found in the Supplemental Materials and on the NCN's website (URL listed in references).
- 2011-2014 Implementation Updates from the Greenest City 2020 Action Plan can be found in the Supplemental Materials.

Stakeholder Engagement:

The West End Plan included significant community engagement, which is detailed on the West End Community Plan page of the City of Vancouver's website. According to the site, "In an effort to improve outreach during the community planning process, the West End Neighborhood Champions Network (NCN) was formed to:

- Provide advice on matters of public involvement and
- Assist with outreach to encourage wide participation in the public engagement process.

The NCN is based on the principles that:

- Everyone is entitled to have a voice, and
- Processes and outcomes are more effective when a diversity of participants are able to contribute."

The model recognizes that communications channels have changed a lot in recent years, especially the way people engage with each other, with businesses, and with government. The general public is no longer as dependent on representatives to access information and to share their ideas. The role of NCN members was to participate in and encourage others to participate in engagement channels that are open to all. Members did not have special status in regards to influencing final policy or designs; however they helped shape the engagement process itself.

Applicability/Similarity to Boulder:

- The West End District area is similar in size to Boulder with 43,000 residents, 23,000 jobs and millions of annual visitors.
- The West End is diverse, walkable, and densely populated. It is situated on peninsula and nearly surrounded by water, which has interesting parallels to Boulder's close proximity to the mountains and dense core. The West End is comprised of a vibrant Central Business District and four main commercial districts.
- The City is on track to bring its GHG emissions 5% below 1990 levels, 93% of the electricity generated is from renewable sources and the City has shifted its investment to supporting alternate modes rather than building new roads.

Replicability: 

Despite their difference in size, the City of Vancouver and the City of Boulder have many parallels in their overall community values, respect for diversity of residents and desire to invest inauthentic community engagement. While larger in scope than AMPS, the information provided on the creation of the West End Plan (on the City's website) provides a detailed overview of planning and implementation strategies. Additionally, the City has done an effective job of communicating about its multitude of planning efforts in a succinct way on its website. The layout, format and information included on the West End and Greenest City 2020 Action Plan page (especially the implementation updates) are very user (citizen) friendly. Examples are provided in the Supplemental Materials. Similar to AMPS alignment with the Climate Commitment, the West End Plan aligns with and supports the City's "Greenest City 2020 Action Plan" which aims to make Vancouver the "greenest City in the world". The West End Plan also

aligns with the City's housing and homeless action plan, as well as the City's larger neighborhood planning efforts. The West End plan aligns closely with AMPS Guiding Principles as well, especially the desire to plan for both the present and the future, supporting a diversity of people (the West End is one of Vancouver's most diverse areas) and providing for all modes safely. More details on these alignments can be found in the Supplemental materials.

Policy Implications:

The West End plan included a variety of recommendations that have policy implications outlined in both the West End Plan and the Greenest City 2020 Action Plan. A sampling of those include

- Establishment of the NCN
- Developing financing tools to help bridge the gap between where the City currently stands with relation to energy efficiency and its goals

Other policies that are currently being explored by the City include: expanding support for car sharing; better management of on-street parking; unbundling the cost of parking from housing; and working with partners to encourage work-from home and other programs that reduce the need for vehicle trips.

Cost Implications:

West End Plan: A detailed matrix of cost implications and funding strategies are laid out on Page 119-120 of the plan (provided in the Supplemental Materials). A high-level breakdown includes 25% of costs covered by the City (through utility bills and property taxes), 50% from Community Amenity Contributions (CACs), Citywide Development Cost Levies (DCL's) and direct contributions provided by developers and 25% from donations, in-kind contributions from community partnering organizations.

References:

- IDA Awards of Excellence Submission: West End Community Development Plan (2014)
- West End Plan video
- West End Plan website
- Neighborhood Champions Network webpage
- Greenest City 2020 Action Plan webpage
- Livable Laneways

Best Practice # 33

Strategy:

Integrated Downtown Management and TDM Programs, - getDowntown

Description:

City of Ann Arbor's getDowntown Program. Founded in 1999, the getDowntown Program is a partnership between the Ann Arbor Transportation Authority, the Ann Arbor Downtown Development Authority, and the City of Ann Arbor. The program provides commuting programs and services to employees and employers in downtown Ann Arbor. Programs and services include the go!pass, the Commuter Challenge and Commuter Club, bike locker rentals, free

commuting assistance to downtown employees and employers, commuting materials, Zipcars and more. getDowntown has its own staff and board.

Applicable Sub-Categories:

- Building Partnerships between Local Governments & Non-Profit Organizations

Action Items for Consideration:

- Further research into structure of getDowntown program's organizational structure, funding streams and effectiveness as a public-private partnership
- Review process for collecting feedback from those that utilizing the program's services and participate in program sponsored events as a possible model

Documented Results:

The getDowntown team periodically conducts surveys to garner information from regional employees. They also conduct a bi-annual Program Study and create an annual Commuter Challenge Report that includes information and statistics regarding downtown commuting choices in Ann Arbor, including the amount of CO2 emissions saved, participant calories burned and decrease in SOV trips. Program Study and Commuter Challenge Report results can be found in the Supplemental Materials.

Stakeholder Engagement:

The getDowntown program sponsors events throughout the year to educate residents on commuting options and to incentive the use of alternate modes (i.e., "Conquer the Cold" Commuting Challenge, Green Fair and Commuter Challenge). The Program Study Survey also provides stakeholders with an annual opportunity to provide feedback on the services. The program also uses a variety of mediums to engage with users including YouTube, social media, blogging and participation incentive partnerships with local businesses. Sample marketing/promotional items from these programs can be found in the Supplemental Materials.

Applicability/Similarity to Boulder:

- Boulder has identified Ann Arbor as a Peer City
- College town (University of Michigan)
- Similar weather
- Nationally recognized; award winning for livability
- Deep commitment to community “brand as a bohemian, politically aware, culturally active, 'hip' and exciting place unlike any other"
- Desire to maximize existing infrastructure
- Successful public transit system in place with "TheRide." TheRide had 6.6M riders and ridership was 4th highest in the nation in 2012

Replicability: 

The City of Boulder already has a good foundation on which to build a program similar to getDowntown. Additional investments in staff time, marketing and event program coordination would be needed. Additionally, increase engagement with existing organizations like Downtown Boulder Inc. would help leverage/extend the reach of existing City staff.

- Aligns with Climate Commitment, Sustainability Framework and overall AMPS Guiding Principles

- Goals to decrease SOVs, CO2 emissions, and GHG emissions
- Encourages the cultivation of partnerships between the public and private sectors
- Offers a variety of transportation options to fit the needs of community members
- Promotes physical health and well being

Policy Implications:

- Encourages increased partnership between the City and private economic and community development organizations like Downtown Boulder Inc.

Cost Implications:

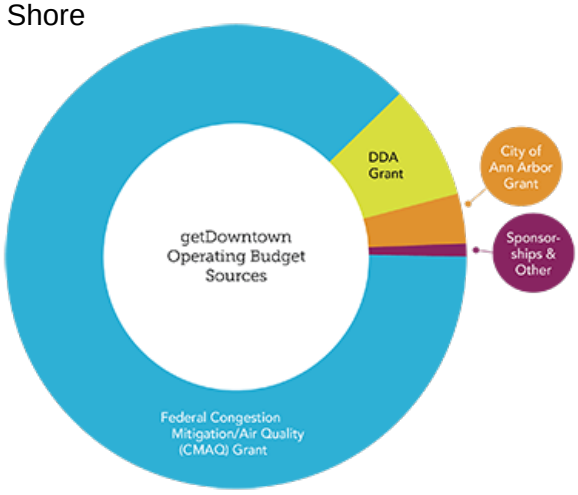
Total program budget is $261,000/year with a FY 2014 breakdown of funding in the following amounts:

- $212,000 CMAQ
- 40,000 Ann Arbor Downtown Development Authority
- 7,100 City of Ann Arbor

The program receives a small amount of sponsorships and other revenue from bike lockers. Of the $261,000 budget, salaries and wages account for $140,000. The remaining funds go directly to programming.

References:

- DDA Development and TIF Plan 2003-2033
- Phone call with getDowntown staff member Nancy Shore
- Supplemental Materials include: Commuter Challenge Infographic; Commuter Challenge Brochure; getDowntown Commuter Survey Results (2012)\



Best Practice # 34

Strategy:

Neighborhood Partnering Program

Description:

Neighborhood Partnering Program: In support of Imagine Austin, the Neighborhood Partnering Program (NPP) provides opportunities for community and neighborhood organizations to affect public improvements by sharing in the costs of those efforts with the City of Austin government. The Neighborhood Partnering Program consists of four subprograms:

1. The Neighborhood Cost Share Program (NCSP): The program assists neighborhood groups in developing, resourcing, and executing small- to medium-sized improvement projects in the City's right of way or on City-owned property. Cost sharing can be achieved through cash contributions, in-kind contributions, or donated labor)
2. The Grant Assistance Program (GAP) will provide City matching funds that will enable applicants to meet cost sharing or matching requirements for external grant opportunities
3. The Parking Benefit Project Proposal Program (PBPPP) assists the associated neighborhood organization identify, scope, and coordinate local improvement projects for which Parking Benefit District revenue can be dedicated and
4. The Adopt-A-Median Program (AAMP) provides an approval mechanism for community groups interested in adopting, beautifying and maintaining a median or other right-of-way areas

Brazos Tech District: "Brazos Technology District is a coalition of tech businesses in downtown Austin, Texas working together to solve common problems — minimizing transportation woes, improving our urban space, and creating better sense of community". With 3,000 high tech employees located along the Brazos Street corridor, the Brazos Tech District is addressing three areas:

- Community building
- Transportation solutions
- Expanding food options

Lead Entity/Entities:

1. City of Austin, Public Works Department; other partners include: University Area Partners
2. Brazos Tech District

Applicable Sub-Categories:

- Building Partnerships between Local Governments & Non-Profit Organizations
- Guidelines for Expanding or Enhancing Existing Districts
- The Important of District Context and Identity

Action Items for Consideration:

- Detailed review of the Neighborhood Partnering and Neighborhood Cost Sharing Program processes as potential models for cost-sharing initiatives with growing districts/neighborhoods

- Engage tech community in conversation about a concept like the Brazos Tech District. This could be done in conjunction with an educational session on Innovation Districts to both provide information about district development beyond the CBD and encourage the investment of private seed funding for such district development.

Documented Results:

- Neighborhood Partnering Program: Names, descriptions and photos of successful Neighborhood Partnering Program projects 2011-2014
- Parking Benefit District: In the pilot program's first year, meters generated $163,000 for the PBD; over $40,000 was devoted to streetscaping projects, including sidewalk and curb enhancements, benches, crosswalks, transit shelters and bike lanes. In the first three months following the West Campus first full-scale PBD launch, the district generated $119,500 in meter revenues, a remarkable increase over the pilot and more than was estimated. Of this amount after city expenses, $28,000 was returned to the district. Moreover, thanks to its use of Austin's Neighborhood Partnering Program, the PBD received a matching benefit, resulting in $56,000 for more focused streetscape projects including sidewalks, trees and benches to accommodate pedestrian and bicycle traffic. These improvements have been doubly beneficial thanks to the city's work with retail and commercial users to encourage the use of non-automobile transportation in the area.

Stakeholder Engagement:

- The City of Austin uses the "SpeakUp" platform for online community conversation provided by Granicus and is similar to (but less functional) than Inspire Boulder.
- Neighborhoods that are interested in applying for the Neighborhood Partnering Program can request a presentation online through the City's website
- Funding requests for the NPP are heavily weighted (20/100 total points) based on level of community participation in the application

Applicability/Similarity to Boulder:

- College town
- Abundance of distinct, active neighborhoods and commercial districts
- Strong culture of community engagement
- High presence of entrepreneurs, tech community and startups
- Strong bicycle culture
- Known for being an active community
- High commitment to quality of life

Replicability: 

The cities of Austin and Boulder share a similar "vibe" and reputation as hip, diverse, creative and a magnet for high-tech jobs and people. While Austin is a much larger community with a much bigger City budget, the median income and median property value in Boulder is significantly higher. Also similar to Austin, Boulder has a very dense presence of high-tech, high growth companies (especially for a community of its size)e and an established commitment to public/private partnership which can help leverage and extend public investment.

Both the NPP and the Brazos Tech District are seeking solutions with co-benefits that encourage the cultivation of partnerships between the public and private sectors. The NPP is firmly rooted in the City of Austin's larger master planning effort, "Imagine Austin" and the City has adopted a complete community planning framework similar to the TMP.

Policy Implications:

- With its adoption of "Imagine Austin" master plan, the City of Austin is working to identify itself as a City of "complete communities that provide access by foot, bike, transit and car to jobs, shopping, learning, open space, recreation, and other amenities and services.
- City of Austin established a Parking Benefit District ordinance in 2011.

Cost Implications:

1. The NPP is a cost-sharing program with the City of Austin. Project requests can range from $500 - $500,000. A full outline of the program's cost-sharing breakdown can be found in the Supplemental Material.
2. Campus Parking Benefit District: City of Austin received $43,275 US Environmental Protection Agency grant to pilot

References:

- Neighborhood Partnering Program website
- Neighborhood Partnering Program videos (available in both English and Spanish)
- The Connector
- Brazos Tech District

Best Practice # 35

Strategy:

Neighborhood District Parking Management Plans

Description:

City of Houston Neighborhood District Parking Management Plans

The City of Houston's District Parking Management Program was developed by Kimley-Horn while under contract with the City of Houston for a larger Parking Strategic Plan (2012-2014). The goal of the program was to engage with the neighborhoods surrounding the Central Business District in the developing district specific parking management solutions, and included the neighborhoods of Montrose, Washington Avenue, EaDo, Rice Village, Central Business District and the Museum District. The program was designed as a template so that the City's Parking Management Division could work directly with the local neighborhoods/districts to help them achieve their larger neighborhood development and management goals through the development and implementation of neighborhood district specific parking management programs and parking/transportation related investments.

Lead Entity/Entities:

City of Houston Parking Management Division (PMD) in partnership with neighborhood/district associations/leadership

Applicable Sub-Categories:

- Guidelines for the Creation of New Districts
- The Important of District Context and Identity
- Fostering Coordination/Collaboration between Districts

Action Items for Consideration

Review and evaluate the format for neighborhood district assessment and engagement used in Houston. An overview and flowchart is provided in the supplemental reference materials.

Potential Sub-Strategies for Implementation

- Create a parking management plan concept.
- Address parking comprehensively for the entire district.
- Establish goals and objectives for parking to support short-term and long-term development plans for the district.
- Create effective district communication mechanism to improve user information and marketing.
- Ensure that parking standards conform with adopted urban form and design goals.
- Establish parking maximums, instead of, or in addition to, parking minimums.
- Consider establishing a parking cap within a district to limit the amount of land dedicated to automobile storage.
- Maintain and optimize parking that already exists in a district, before taking on costly addition of new parking facilities.
- Encourage shared parking among neighboring businesses.

Documented Results

The Houston Washington Avenue area implemented a Parking Benefit district in 2013, installing new multi-space smart meters and implementing a revenue sharing plan with the district. Initial revenues available for district sharing after the first 6 months were approximately $60,000. A copy of the parking benefit district ordinance for the Washington Avenue area is provided in the supplemental reference materials.

Neighborhood District Parking Management plans are currently in process for the Rice Village, Museum and East Downtown districts.

Stakeholder Engagement

The neighborhood district parking management plan process used in Houston utilizes the following steps:

- Defining Neighborhood Context
- Current Conditions Overview
- Neighborhood Parking Resources and Market Conditions

- Economic Development Initiatives
- Community Values and Goals
- Historical, Cultural, Religious, Social Values
- Key Issues Identification
- Funding Tools, Resources & Potential Partner Organizations
- Parking and Mobility Management Specific Issues
    - On-Street Parking
    - Off-Street Parking
    - Valet Ordinances
    - Events Management
    - Parking Planning/Coordination with City Planning
    - Parking & Economic Development
    - Legal & Regulatory Issues
    - Urban Planning Initiatives
    - Multi-Modal Issues

Applicability/Similarity to Boulder:

Houston has identified Houston as a "City We Can Learn From"

Replicability:

High replicability

Policy Issues:

Prior to embarking on a similar initiative, ensure that the potential policy issues such as parking revenue sharing, are considered prior to opening discussions. Ensure that staff resource availability and funding sources are available to see the initiative through or be open with the neighborhood districts that resources are limitied up front.

Cost Implications:

The initial costs for initiative a neighborhood parking management plan is relatively low if done in-house. If a consultant is engaged to lead the process and generate an intial report/action plan a budget of $25K is reommended per area.

References:

- Houston Parking Benefit presentation (August 2014)
- City of Houston website (cityofhouston.gov/parking)
- City of Houston Neighborhood Parking Management District Process Flowchart
- Washington Avenue Parking Benefit District Ordinance

Best Practice # 36

Strategy:

Seattle's Urban Village Strategy for Neighborhood Development

Lead Entity/Entities:

City of Seattle, Department of Neighborhoods

Description:

Seattle's Urban Village Strategy for Neighborhood Development

In 1994 the City adopted the Comprehensive Plan in compliance with the State of Washington's Growth Management Act (GMA). The City's Comprehensive Plan promotes an "Urban Village Strategy" to concentrate growth in areas of the city already zoned to accommodate substantial additional development. As part of this process the City identified a number of "Urban Centers" and "Urban Villages" throughout the city where growth would be encouraged and concentrated. Subsequently, the City Council conducted "sub-area planning" through an extensive neighborhood planning process for 38 neighborhood created by nearly 20,000 community members. The plans identified over 4,200 actions recommended by these neighborhoods to ensure that they will continue to thrive and improve as Seattle grows over the next 20 years in ways that meet their commitments under the State's Growth Management Act. Of the 2,358 projects identified in the plans, more than 87 percent have been finished or are under way.

Action Items for Consideration:

- Consider an Expert Panelist from the Seattle Department of Neighborhoods
- Further research of the "Adoption Matrix" and lead agency "implementer" model as possible format for implementation of AMPS recommendations

Applicable Sub-Categories:

- Guidelines for the Creation of New Districts

Potential Sub-Strategies for Implementation:

Additional research into the formalized Neighborhoods Outreach and Engagement Program, specifically the roles and funding for the Public Outreach and Engagement Liaisons and Neighborhood District Coordinators as a potential model for a formalized public participation process.

Documented Results:

Transportation projects were the largest category of projects identified in the neighborhood planning process. Locally identified transportation projects became critical parts of city-wide plans for transit, biking and pedestrian safety. Today, 80% of the transportation projects outlined in the neighborhood plans have been built or are currently being built. Additionally, the City has invested $11M to improved streets and $13.5M in transportation projects. A recent survey of Seattle residents found that 93 percent said neighborhood plans had improved their communities.

Stakeholder Engagement:

Public engagement for the Neighborhood Planning Process was handed through the Seattle Department of Neighborhoods Outreach and Engagement Program. The Program was designed to increase access to information, resources, and civic processes for the diverse groups and individuals in each neighborhood, including historically underrepresented

populations. The Program's work is implemented by Public Outreach and Engagement Liaisons and Neighborhood District Coordinators, a team of professionals located in offices throughout Seattle who serve as resources and liaisons for community members. Together they assist other city departments in their outreach and engagement needs ensuring that city government provides information to all community members, forges connections, fosters relationships, and receives rich, diverse, and meaningful civic participation.

Applicability/Similarity to Boulder:

- Boulder has identified Seattle as a "City We Can Learn From"
  *Presence of major university in downtown area (WU)
- Abundance of distinct, active neighborhoods and commercial districts
- Strong culture of community engagement
- High presence of entrepreneurs, tech community and startups
- Strong bicycle culture
- Known for being an active community
- High commitment to quality of life

Replicability: 

Despite their difference in size, the City of Seattle and the City of Boulder have many parallels in their overall community values, respect for diversity of residents and desire to invest inauthentic community engagement. The City of Seattle's Neighborhood Planning Process has been recognized for its unique "bottom-up approach", an approach that would align well with the high level of community participation that exists in Boulder. The model of empowering some of the AMPS districts with a "Urban Village Strategy" with a specific policy "Approval and Adoption Matrix" seems like a model that would work well in Boulder.

- Aligns with several of the AMPS Guiding Principles including: customizing tools by area, supporting a diversity of people, seeking solutions with co-benefits and building partnerships for the future.

Additionally, the City of Seattle's ability to create a planning framework that aims to balance a process that is managed by the City and whose recommendations are ultimately approved by the Council that at the same time feels grassroots in nature encourages the cultivation of authentic and productive partnerships between the public and private sectors.

Policy Implications:

The Neighborhood Planning Process began in 1995 with a City resolution calling for a partnership between the City and its neighborhoods to improve the quality of life while embracing the City's Urban Village Strategy, and concluded in 1999 with the City Council's adoption of broad policies from each neighborhood plan into the Comprehensive Plan chapter on Neighborhood Plans. The City also "recognized" the plans created by each neighborhood as "reflecting the wishes of the neighborhood," and adopted an Approval and Adoption Matrix for each plan that listed the recommendations from the plan, identified a lead agency as "implementer", and included a City response about the likelihood of implementation.

Cost Implications:

As part of its mission, the Seattle Department of Neighborhoods (DON) also manages the Neighborhood Matching Fund (NMF), which provides grants to preserve and enhance the City's diverse neighborhoods. DON has four lines of business:

1. The Community Building Division delivers technical assistance, support services, and programs in neighborhoods,
2. to strengthen local communities, engage residents in neighborhood improvement, leverage resources and
3. Complete neighborhood-initiated projects. The programs that support this work include:
    - P-Patch Community Gardens;
    - Neighborhood District Coordinators;
    - Major Institutions and Schools;
    - Historic Preservation;
    - Neighborhood Planning Outreach; and
    - Neighborhood Matching Fund (NMF)

A complete overview of the Department of Neighborhood's 2014 budget can be found in the Supplemental Material.

References:

- City of Seattle website
- Seattle Neighborhood News article (2009)
- Department of Neighborhood's Budget Overview 2014

Best Practice # 37

Strategy:

Industry Cluster Development

Description:

Portland Cluster Development

An industry cluster is a group of geographically concentrated, inter-related firms. Companies that locate in a cluster benefit from a skilled labor force, increased innovation, coordinated advocacy efforts, high-quality supply chains, and knowledge spillover. Clusters interact in ways that establish competitive advantages through the creation and incorporation of new knowledge into products and the processes that produce them. PDC understands the importance of building strong clusters, and that's why we support initiatives that strengthen cooperation and competitive advantages for Portland companies. The Portland Development Commission (PDC) targets clusters that are part of the traded sector, meaning that they sell to markets outside the region, bringing new money into the community.
By focusing on clusters PDC can:

- Deploy limited resources in a strategic and catalytic fashion.
- Develop a deep understanding of factors influencing competitiveness.
- Interact with groups of firms rather than conduct isolated transactions.
- Facilitate industry-led innovation and interventions.
- Foster the alignment of resources among regional and state partners.

Objectives for Organizing Portland Clusters:

- Convene critical players in cluster eco-system.
- Develop detailed market analyses for each cluster defining actual market opportunities.
- Develop and implement industry-driven action plans
- Create self-sustaining momentum within clusters
- **Lead Entity/Entities:**
- Portland Development Commission (PDC)

Applicable Sub-Categories:

- Guidelines for the Creation of New Districts
- Guidelines for Expanding or Enhancing Existing Districts

Action Items for Consideration:

- Consider an Expert Panelist from the Portland Development Commission
- Identify potential cluster sectors
- Identify and begin conversations with key partners/cluster/sector leadership

Potential Sub-Strategies for Implementation:

Similar to Vancouver and Seattle, further research on the public participation model in Portland with specific focus on the structure of the NED Leadership Group and how it works with the Ad-Hoc Citizen Advisory Committees is recommended. Creating a sustainable and consistent model for public participation would be beneficial both in terms of saved staff time and increased consistency/understanding of the process for stakeholders.

Documented Results:

Portland has identified four main industry concentrations to which it directs staff and financial resources, including:

- Athletic & Outdoor
- Clean Teach
- Advanced Manufacturing
- Software

Each cluster area also has its own webpage that outlines recent news for the cluster, economic impact of the cluster focus, top PDC initiatives in that cluster area and a downloadable strategy document specific to the cluster. Examples can be found in the reference section.

Stakeholder Engagement:

In October 2013, PDC updated its public participation policy to tailor its public outreach and involvement to reflect both the agency's mission and its organizational capacity. PDC's main approaches to engage the community will encompass:

1. The NED Leadership Group. The charge of this approximately 30-member group is to guide the implementation of the NED Strategy.

2. The Central City Budget Advisory Committee. This approximately 15-member committee will advise PDC during the budget development process, focusing on projects, programs, and activities in the Central City Urban Renewal Areas (URAs).
3. Citizen Advisory Committees. PDC has a process for creating, managing, and staffing one-time and ongoing citizen advisory committees to advise and inform PDC on significant projects and activities.

Additionally, PDC is actively involved with social media outreach including Facebook, Twitter, Flickr and YouTube.

Applicability/Similarity to Boulder:

- Portland has identified Portland as a "City We Can Learn From"
- Nationally recognized; award winning for livability
- Strong culture of community engagement
- High presence of entrepreneurs, tech community and startups
- Strong bicycle culture
- Known for being an active community
- High commitment to quality of life

Replicability: 

The cities of Boulder and Portland share a similar "vibe" and reputation as hip, diverse, creative and a magnet for high-tech jobs and active people. Similar to Portland, Boulder has a very dense presence of high-tech, high growth companies (especially for a community of its size) and an established commitment to public/private partnership which can help leverage and extend public investment. Additionally, with the presence of budding commercial districts beyond the CBD, the cluster concept would be a good model to explore for encouraging targeted growth in specific industry areas that would support the City's larger economic development goals.

1. Similar to Boulder, the City of Portland has a strong commitment to building a sustainable economy. The main focus of its economic development strategy is to align its strategic partners behind three key goals:
2. Stimulate neighborhood business vitality,
3. Maximize competitiveness and
4. Drive urban innovation. Additional information about the strategies under each focus area can be found in reference #6 (Economic Development Strategy Presentation.

This strategy aligns with several of the AMPS Guiding Principles including: customizing tools by area, supporting a diversity of people,

seeking solutions with co-benefits and building partnerships for the future.

Policy Implications:

Public Participation Policy, Updated 2013

Cost Implications:

According to the PDC"s 3-Year Status Report: Approximately $74.8 million of direct financial assistance to support business and job growth in Portland – largely in the form of multi-year loans and tax abatements – has leveraged $745 million in private and federal government investments and produced an estimated 4,748 construction jobs. A breakdown of estimated jobs created, public financial assistance, private Investment and leveraged ratio of investment from Economic Development-Related Programs from July 2009 - July 2012 can be found on page 3 of reference # 7 (Portland Economic Development Strategy).

References:

- Portland Development Commission Community Engagement website
- PDC Cluster information
- Sample Cluster Industry Report (for Athletic & Outdoor Cluster) (PDF)
- PDC Cluster information
- Economic Development Strategy Presentation (PDF)
- Portland Economic Development Strategy 3-Year Status Report (PDF)

Best Practice # 38

Strategy:

Innovation Districts

Description:

Innovation Districts: Case Study Boston, MA

For the past 50 years, the landscape of innovation has been dominated by places like Silicon Valley—suburban corridors of spatially isolated corporate campuses, accessible only by car, with little emphasis on the quality of life or on integrating work, housing, and recreation. A new complementary urban model is now emerging, giving rise to what we and others are calling “innovation districts.” These districts, by our definition, are geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators. They are also physically compact, transit-accessible, and technically-wired and offer mixed-use housing, office, and retail. Innovation districts are the manifestation of mega-trends altering the location preferences of people and firms and, in the process, re-conceiving the very link between economy shaping, place making and social networking. In recent years, a rising number of innovative firms and talented workers are choosing to congregate and co-locate in compact, amenity-rich enclaves in the cores of central cities. Rather than building on green-field sites, marquee companies in knowledge-intensive sectors are locating key facilities close to other firms, research labs, and universities so that they can share ideas and practice “open innovation.”

Lead Entity/Entities:

City of Boston, Office of the Mayor Tom Menino

Applicable Sub-Categories:

- Guidelines for Expanding or Enhancing Existing Districts
- District Certification and Designations

Action Items for Consideration:

- Consider an Expert Panelist from community where successful Innovation District exists
- Identify potential partnering entities and institutions (both public and private)
- Identify existing districts/neighborhoods/activity centers that align with one of the three main models for Innovation District development with a specific focus on the Anchor District model, perhaps in partnership with CU

Documented Results:

Case Study: Boston, MA: The Innovation District is Mayor Thomas M. Menino's initiative to transform 1,000 acres of the South Boston waterfront into an urban environment that fosters innovation, collaboration, and entrepreneurship. In the three years since the initiative began, the area has grown rapidly. The growth is spread across a diverse range of companies in different sectors and at different scales. Here are selected highlights of all we've accomplished in just a few short years:

<u>New Jobs</u>

- Added over 5,000 new jobs in over 200 new companies
- Technology companies have contributed 30% of new job growth
- 21% of new jobs are in creative industries like design and advertising
- Greentech + life sciences are growing, with 16% of new jobs in these sectors

<u>New Companies</u>

- Of the new companies, 11% are in the education and non-profit sectors
- 40% of new companies are sharing space in co-working spaces and incubators
- 25% of new companies are small scale, with 10 employees or fewer

Stakeholder Engagement:

Creating an Innovation District is a highly collaborative and stakeholder intensive process. After researching dozens of Innovation Districts across the world, researchers at The Brookings Institute determined that a "collaborative leadership network" is key to creating a district. A collaborative leadership network is a collection of leaders from key institutions, firms, and sectors who regularly and formally cooperate on the design, delivery, marketing, and governance of the district (i.e. City governments, nonprofit economic development groups, private developers, for profit businesses). Practitioners reflected that to bring innovation to scale—i.e. beyond the boundaries of individual organizations and firms—has required leaders from disparate institutions to encourage idea sharing across researchers, firms, universities, and supportive organizations. Likewise, physically remaking a place in the service of innovative growth and expanding employment and educational opportunities for low-income residents has

required leaders to think and act in a multi-dimensional fashion, across multiple sectors and communities.

Applicability/Similarity to Boulder:

While the creation of "Innovation Districts" typically adhere to three general models, the model most applicable to Boulder appears to be the "Anchor Plus" model. The “Anchor Plus” model, primarily found in the downtowns and mid-towns of central cities, is where large scale mixed-use development is centered around major anchor institutions and a rich base of related firms, entrepreneurs and spin-off companies involved in the commercialization of innovation. Additionally, innovation districts can reduce carbon emissions and drive denser residential and employment patterns at a time of growing concern with environmentally unsustainable development. Innovation districts are potential engines for sustainable development since they embrace residential and employment density via the strategic use of transit, historic buildings, traditional street grids, and existing infrastructure. Some districts are going further by using renewable energy as their primary power source and by transforming their buildings, streets, and parks into living labs to test cutting edge sustainable projects in concert with technology firms and entrepreneurs.

Replicability: 

Globally, Barcelona, Berlin, London, Medellin, Montreal, Seoul, Stockholm and Toronto contain examples of evolving districts. In the United States, districts are emerging near anchor institutions in the downtowns and midtowns of cities like Atlanta, Baltimore, Buffalo, Cambridge, Cleveland, Detroit, Houston, Philadelphia, Pittsburgh, St. Louis, and San Diego. They are developing in Boston, Brooklyn, Chicago, Portland, Providence, San Francisco and Seattle where underutilized areas (particularly older industrial areas) are being re-imagined and remade. Still others are taking shape in the transformation of traditional exurban science parks like Research Triangle Park in Raleigh-Durham, which are scrambling to meet demand for more urbanized, vibrant work and living environments. Innovation districts represent a radical departure from traditional economic development

Policy Implications:

While Innovation Districts are still a relatively new trend, their design and implementation has been driven/led by a variety of individuals and institutions, both public and private. For example:

- Mayors & Local Governments (Boston, Barcelona, Stockholm)
- Real Estate Developers and Land Owners (Seattle, Brooklyn)
- Incubators, Accelerators and Other Economic Cultivators (Barcelona, Cambridge, St. Louis)

Cost Implications:

Due to the various types of models used to create an Innovation District, the financing tools and public investments used can be distinct. Districts can use a variety of special taxing districts, seed funding, infrastructure development, and grants. This demonstrates the possibility of multiple methods of achieving similar outcomes depending on the resources available in each city. For example, Barcelona concentrated its efforts on five high-tech areas, whereas Toronto focused on biomedical and financial industries. Boston, however, chose not to target specific industries, instead allowing different industries to grow naturally.

References:

- "The Rise of Innovation Districts: A New Geography of Innovation in America", a report for the Metropolitan Policy Program of the Brookings Institute by Bruce Katz and Julie Wagner (May 2014)
- Boston's Innovation District website
- Michigan Municipal League

Best Practice # 39

Strategy:

Neighborhood Parking Programs

Description:

Often time residential areas that are near busy commercial areas experience spillover and parking problems where customers occupy spaces, leaving minimal spaces for the residents and their visitors. As a way to combat this, many cities implement a permit program specifically for neighborhoods so that they residents are ensured a parking space.

Action Items for Consideration:

- Review new practices related to residential permit programs. Specifically, evaluate how neighborhood parking demand is documented, how the effectiveness of existing policies are assessed, how new blocks/areas are added or modified.
- Research potential program innovations that attempt to be more proactive in regards to program adjustments.
- Review how pricing is structured for different types of permits.
- Review the potential introduction of parking charges in residential developments, through separating or “unbundling” the cost of parking from rents or sale prices.
- Assess concepts such as “rent rebates” or discounts to residents who own fewer vehicles and do not use their allocated parking spaces.

Potential Sub-Strategies for Implementation:

- Implement paid meters in appropriate neighborhoods (and the residents agree with it). Have the meter revenue fund improvement projects within that neighborhood.
- Evaluate each neighborhood requesting a permitted zone to have unique regulations that meet their needs. For instance, one neighborhood may be fine with allowing customer parking for a 2-hour time limit, whereas others may not allow any parking on the street without a valid permit.
- Create a simple online permitting process where people can apply for permits and request that their neighborhood be part of the program.

Documented Results:

NPP programs find a balance between customer demands and residential parking demands. The types of programs vary from city to city, however, they have effectively balanced parking demands in those areas.

Stakeholder Engagement:

Revamping this program would require continuous and open outreach with neighborhood representatives and residents. Furthermore, information

Applicability/Similarity to Boulder:

The City currently has a neighborhood permitting program in place. The program could be reviewed and adjustments made to improve the program in how it is applied, application processes, and other management components of the program.

Replicability: 

This strategy is not tailored to any specific type of area or community. It can be replicated easily because of its broad nature and ability to be molded to the specific needs of the community.

Policy Implications:

This strategy will require the City to reconsider their permit program and its applicability to the City's neighborhoods.

Cost Implications: 

Costs for this strategy may involve a revamping of the permitting structure and online services to ease the permitting and application processes.

References:

- City of Seattle, Department of Transportation
  City of Charlotte, Department of Transportation

Best Practice # 40

Strategy:

Transit Oriented Corridors

Description:

Assess best practices related to the creation of effective TOD Corridors or Transit Oriented Corridors (TOCs). Below is summary of a TOC planning process including planning goals/desired outcomes:

1. Comprehensively planning and designing a collection of transit oriented developments (TOD) at a corridor, or TOC scale can optimize many key benefits, such as:
   - Higher corridor internal trip capture rates
   - More balanced ridership flows
   - Maximize the person miles per hour on a corridor
   - More effective coordination between transit investments and public and/or private development initiatives
2. A key process goal is to better understand the relationship between transit use and key TOC/TOD components, including:
   - TOC/TOD densities and both peak & off peak ridership rates
   - TOC/TOD land use synergies and balanced, bi-directional transit travel

- Reduced Greenhouse Gas emissions, energy consumption, and other benefits associated with improved travel efficiencies

3. Another key process goal is to refine stakeholder's and planner's understanding and application of the TOC/TOD perspective to leverage the following objectives:

- Corridors more effectively capture natural travel patterns
- Easier to effectively coordinate transportation, land use and urban design at a sub-regional/corridor level, as opposed to a regional level

See reference document: "Central Corridor TOD Investment Framework: A Corridor Implementation Strategy December, 2010"

Center for Transit-Oriented Development

The Center for Transit-Oriented Development (CTOD) is the only national nonprofit effort dedicated to providing best practices, research and tools to support market-based transit-oriented development.

CTOD partners with both the public and private market sectors to strategize about ways to encourage the development of high performing communities around transit stations and to build transit systems that maximize development potential. CTOD works to integrate local and regional planning, generate new tools for economic development, real estate and investment issues, improve affordability and livability for all members of the community, and respond to imperatives for climate change and sustainability. The Center for TOD is a partnership of Reconnecting America, the Center for Neighborhood Technology, and Strategic Economics.

For more information go to CTOD's website at www.ctod.org. Several reference documents from the Center for Transit-Oriented Development are provided for review including:

- http://www.reconnectingamerica.org/assets/Uploads/tod101full.pdf
- http://ctod.org/pdfs/tod201.pdf
- http://puff.lbl.gov/transportation/transportation/pdf/ra-tod-202.pdf
- http://www.fta.dot.gov/documents/RA_TOD206_IntercityRail_6.6.13.pdf
- http://www.reconnectingamerica.org/resource-center/browse-research/2008/tod-202-transit-employment-increasing-transit-s-share-of-the-commute-trip/
- http://www.crcog.org/publications/TransportationDocs/Transit/NHHS/TOD%20Resources/(2)BestPracticesLibrary8-8.pdf

Minneapolis/St. Paul - Central Corridor Project

Another example of an effective TOD corridor planning project is the Central Corridor between downtown St. Paul and Minneapolis. This eleven-mile light rail corridor will run on University and Washington Avenues linking with the Hiawatha light rail line and the new Northstar commuter rail line.

The key take-away from this project is the idea of a coordinated investment framework for the Central Corridor, in order to strategically coordinate investments and maximize the value of new light rail transit for surrounding neighborhoods. The Central Corridor Funders Collaborative (CCFC) supported this planning process and the creation of a Central Corridor Working Group, which consisted of representatives from the City of St. Paul, the City of Minneapolis, Ramsey

County, Hennepin County, the Metropolitan Council, and the Minnesota Housing Finance Agency.

The purpose of the Central Corridor Investment Framework is to identify critical challenges and opportunities associated with TOD-supportive investments that might otherwise be missed by individual jurisdictions and participants. The framework provides a comprehensive summary of all of the corridor-wide key investments necessary to fulfill the visions contained in local community-based plans. It is intended to help in establishing a coordinated voice in support of future corridor-wide funding needs, clarify strategies for various funding partners, and provide information to support individual jurisdiction funding requests and private investments. The referenced report (Central Corridor TOD Investment Framework: A Corridor Implementation Strategy December, 2010) summarizes the results of this effort.

Arlington County Corridor

Arlington County is arguably the nation's best TOD success story of the past 30 years. Located directly across the Potomac River from Washington, D.C., Arlington County attracts many visitors to sights such as Arlington National Cemetery and the Pentagon. Since the 1970s, it has also become an increasingly popular place to live, work, and shop due in part to high-density development along its two Metrorail corridors: Rosslyn-Ballston and Jefferson Davis.

A conscious decision by county planners, officials and citizens to locate the Metrorail along two major arterials (Wilson Boulevard and Fairfax Drive) instead of down the median of Interstate 66 created opportunities for both public and private development. Superb transit access coupled with connect thoroughfares ensured that trains, buses, cars, and pedestrians could easily reach neighborhoods that surround stations. Since Metrorail began operating in Arlington County in the late 1970s, it has become a popular origin and destination for residents and visitors alike.

Through a combination of strategic planning and market forces, each of Arlington County's Metrorail stations has taken on a specialized function: Rosslyn, Ballston, Crystal City serve as business centers, Court House has emerged as a governmental center, Pentagon City has become a regional shopping center, Clarendon functions as an "urban village" with shops and restaurants, and Virginia Square has a cultural and educational focus. Of the nearly 190,000 people living in Arlington County, 26 percent reside in Metrorail corridors even though they comprise only 8 percent of land area. Since 1960, over 31 million square feet of gross floor area (GFA) of office space and nearly 30,000 residential units have been constructed in the county, and over three-quarters of these amounts have been in Metrorail corridors. Arlington County today boasts one of the highest percentages of transit use in the region with 39.3 percent of Metrorail corridor residents commuting to work by public transit.

Documented Results:

The cumulative effects of joint development and corridor planning over the past 4 decades in Arlington County are revealed by smart growth and ridership statistics.

Arlington County planners understood that Metrorail provided an unprecedented opportunity to shape future growth and proceeded to introduce various strategies — targeted infrastructure improvements, incentive zoning, development proffers, permissive and as-of-right zoning — to entice private investments around stations. After preparing countywide and station-area plans on desired land-use outcomes, density and setback configurations, and circulation systems, zoning classifications were changed and developments that complied with these classifications could proceed unencumbered. The ability of complying developers to create TODs "as-of-right" was particularly important for it meant developers could line up capital, secure loans, incur upfront costs, and phase-in construction without the fear of local government "changing its mind."

Understanding Transportation and Land Use Interactions at the Station and Corridor Scales

Here are the initial findings of this research:

- Diversity, as represented by The Mixed Use Entropy index shows a statistically significant relationship to AM Boardings
- Density, as shown by Employees per acre shows a significant relationship with AM Boardings
- Parking spaces shows a statistically significant negative relationship

And finally, when selecting stations without parking spaces there were some interesting findings between several dimension and AM peak hour boardings, as follows:

- The mixture of land use entropy index of the shows up as both significant and positively correlated with AM peak hour boardings.
- Population density is significant, and negatively correlated
- As the time to drive to downtown SF goes up, AM boardings go down

Stakeholder Engagement:

The Creative Districts program is heavily stakeholder driven. Indeed one of the most important qualifiers for the program is to demonstrate extensive stakeholder engagement across all sectors in the community and to be able to show their support and role in the district's development and growth. The state has successfully worked with these districts, providing funding, training in support as they work towards sustainability.

Applicable Sub-Categories:

- District Certification and Designations

Applicability/Similarity to Boulder:

The City of Boulder is currently working on a mile-wide corridor that runs east from Folsom Street to 75th Street along Arapahoe Avenue. The project is set to run through 2015.

Replicability:

The approaches to TOD Corridor planning in the examples and reference documents provided can be adopted to apply to any corridor planning project.

Policy Implications:

Limited. The corridor project is already approved; these planning and implementation recommendations should support the policy decisions already approved.

Cost Implications:

Limited. The referenced examples and planning process elements highlighted in the attached could be integrated into the East Arapaho project with minimal cost.

References:

- Central Corridor TOD Investment Framework: A Corridor Implementation Strategy December, 2010

- City of Sparks Nevada, TOD Corridor Master Plan

Best Practice # 41

National, Local or International:

National

City:

Fort Worth, TX (Pop: 777,992)

Lead Entity/Entities:

Downtown Fort Worth, Inc.

Description:

Molly the Trolley. To make it easier for people to get around downtown Fort Worth, several downtown organizations joined creative forces to test a new shuttle service. "Molly the Trolley", a whimsical take on Fort Worth's traditional longhorn mascot, is a rubber-tire trolley that appeals to visitors and locals alike. Molly links all of downtown together by traveling a circular route, allowing visitors, employees and residents to conveniently travel downtown. The Trolley runs Monday-Friday, 10 AM to 10 PM with several extended service times offered (like Sunday night).

Applicable Sub-Categories:

- District Branding, Marketing and Strategic Communication

Action Items for Consideration:

- While Go Boulder has information and links to the various RTD routes on the City's website, several of the web links to bus routes (including the Downtown Hop) are broken. Regular maintenance on the website to ensure that links are working and up to date is strongly recommended.
- Connect with RTD and Downtown Boulder Inc. about a partnership to do a pilot on one of the in-town routes where increased ridership would be most impactful. This pilot could include rebranding of fleet vehicles (with wraps) partnered with an educational (yet fun!) marketing campaign to encourage increased ridership.

Documented Results:

The Molly the Trolley project has included a large research component. When the program was launched, riders were surveyed every other day by volunteers who rode the trolley from 7 a.m. to 9 p.m. Survey takers wear eye-catching Molly t-shirts and serve as downtown ambassadors. They report very enthusiastic riders who love the service, love the name and even want to purchase the t-shirts. The marketing surveys also allow us to make improvements to the service almost in "real time." Within the first 10 days of service, ridership ranged from 138 to 392, with an average of 207 (initial estimates were 50 riders/day).

Other survey results:

- 68.7% rated Molly "excellent" for comfort
- 70.5% rated the route and schedule as "excellent"
- 75% rated Molly "excellent" in meeting their downtown transportation needs

- 80% use Molly 1-2 times per day

Stakeholder Engagement:

While the program was implemented at the downtown association staff level, and done so very quickly, its success relied heavily on gaining "real time" feedback from riders. Downtown Ambassadors were dedicated to the service and acted as downtown "tour guides" - handing out information and getting rider feedback through surveys. Additionally, the program was made possible by an innovative public-private partnership that included the Fort Worth Transportation Authority, non-profit downtown association, Convention and Visitor's Bureau and private businesses.

Applicability/Similarity to Boulder:

While the cities are vastly different in size and demographic make-up, the program's public-private partnership, marketing and outreach campaign and program monitoring/expansion provide a good template for future transportation marketing/promotional campaigns.

Replicability: 

The entire program was created, approved and launched within one month. A downtown circulator trolley could be replicated in any downtown as long as there are dedicated partners involved to support the service both financially and through marketing. The service could simply be renamed to reflect the unique character of each city. The various elements of the marketing campaign could also be replicated.

- Encourages the cultivation of partnerships between the public and private sectors
- Offers a variety of transportation options to fit the needs of community members
- The success of the campaign relied heavily on community adoption of a creative and community-specific brand. The visuals used in the creation of the "Molly the Trolley "persona provide a good example of how transportation marketing campaigns can be done in a way that successfully ties into a community's larger values and character.

Policy Implications:

The service was a public-private partnership led by the Downtown Fort Worth Inc. organization.

Cost Implications:

The Trolley was funded through a public-private partnership that included: Downtown Fort Worth, Inc., the Fort Worth Convention & Visitors Bureau, Sundance Square, the Fort Worth Transportation Authority (the T), the Omni Fort Worth Hotel, The Ashton Hotel and the Sheraton Fort Worth Hotel and Spa. The pilot was launched with a reasonable marketing budget of $15,000.

References:

- Molly the Trolley website
- IDA Awards of Excellence Submission 2009 (PDF)

Peer Cities Research Summary

Peer Cities Research Overview

City staff requested a review of "Peer Cities" and "Cities We Can Learn From" focusing on selected "AMPS focus areas" as defined in the table below. The distinction between "peer cities" and "cities we can learn from" relates to the fact that while some cities that are not technically "peer cities" in terms of size or other factors, they are the cities that are implementing advanced access management and parking strategies that Boulder may benefit from reviewing.

City of Boulder
Access Management and Parking Strategies
Peer Cities Research

	District Management	On & Off Street Parking	Trans. Demand Management	Technology and Innovation	Zoning and Code Requirements	Enforcement and Compliance	Performance-Based Pricing
Peer Cities							
Ann Arbor, MI	x	x	x	x	x	x	
Austin, TX		x	x		x		
Berkeley, CA		x	x	x			
Burlington, VT							
Ft. Collins, CO		x			x		
Madison, WI		x	x		x		
Palo Alto, CA		x	x				
Santa Monica, CA		x	x	x	x		x
Cities We Can Learn From							
Portland, OR	x	x	x		x		
San Francisco, CA	x	x	x	x	x		x
Seattle, WA	x	x	x	x	x	x	x
Arlington County, VA			x				
Washington, DC		x	x				x
Los Angeles, CA				x			x
Charlotte, NC		x	x		x		
Raleigh, NC					x		
International							
Odense, Denmark		x	x		x		x
Frieberg, Germany		x	x		x		x

PEER CITIES
Ann Arbor, Michigan

Introduction:

The City of Ann Arbor is located in Michigan approximately 45 miles west of Detroit, with a population of 116,121 people (2012). The City is home to the University of Michigan that claims 40,000 students and offers a "small town feel with big city amenities". Local attractions include a large variety of restaurants, museums that include hands on exhibits and art as well as local history, botanical gardens and an arboretum.

The most significant aspect of the Ann Arbor program from the perspective of Boulder's AMPS project is their "integrated downtown management and TDM program known as "get Downtown".

"getDowntown":

The City of Ann Arbor's "getDowntown" program was founded in 1999, the "getDowntown" program is a partnership between the Ann Arbor Transportation Authority, the Ann Arbor Downtown Development Authority, and the City of Ann Arbor. The program provides commuting programs and services to employees and employers in downtown Ann Arbor. Programs and

services include the go!pass, the Commuter Challenge and Commuter Club, bike locker rentals, free commuting assistance to downtown employees and employers, commuting materials, Zipcars and more. “getDowntown” has its own staff and board.

This program was covered above in the Best Practice Review section (Best Practice # 33). Below is additional peer city information in the selected focus areas:

District Management:

Parking and Access Management Services in Ann Arbor has a “vertically integrated” organizational model (all parking and access management services are managed by on entity). The Downtown Development Authority of the City of Ann Arbor (DDA) is a public corporation responsible for the management, operations, maintenance, capital and financial obligations with respect to Ann Arbor parking systems. The DDA manages all parking facilities and on street, metered parking spaces owned or leased by the City and DDA within the DDA parking area.

On- and Off-street Parking:

Public parking is conveniently located in the downtown area and there are 50 businesses that will validate parking for their customers. The City’s Downtown Development Association (DDA) manages six parking structures and nine metered lots, all located throughout downtown. They include attended and automated parking lots that also provide motorcycle/moped and scooter parking. The parking lots and garages average about 475 parking spaces and there are approximately 1,750 metered, on-street parking spaces around the downtown area. These locations are mapped on the City’s website, with additional information on the parking regulations, such as price, enforcement hours, and numbers to call for additional information or questions.

- Day-to-day on and off-street parking management is outsourced to a private parking management firm minimizing the need for city staff with higher benefit costs.
- Newer multi-space meter technology reduces the number of meters, thus decluttering the street scape and providing more customer payment options.
- The new meter technology also offers improved management data for tracking parking demand and turnover.

Technology Innovation:

Ann Arbor has become a laboratory for wireless vehicle communications as the University of Michigan continues with its study of vehicle to vehicle and vehicle to infrastructure technology. The experiment started in 2012 with approximately 2,800 vehicles and a grant from USDOT. The current plan is to equip 9,000 vehicles (10% of the City’s driving population) to be part of the experiment and eventually grow that number to include 20,000 vehicles. As the vehicles make the daily trips the onboard equipment records data through communication with other vehicles and buildings. The data is then downloaded by the University, for analysis. The technology may be used to reduce accidents, congestion and make vehicle transport a large interconnected system.

Transportation Demand Management:

An important strategy for the City is the encouragement of a menu of transportation choices for downtown visitors, residents, customers, employees, and others, who can select their preferred means to come downtown based on factors such as cost, convenience, and environmental interests. The City has a number of programs in place that help to reduce reliance on the single-occupancy vehicle.

- Bicycle – on the City's map on the transportation website, the location of downtown bicycle parking is mapped. Additionally, a person can scroll over the symbol on the map to see what type of bike parking it is (e.g. inverted U).
- Zipcars – zipcar car sharing services are provided on the University of Michigan campus. The system helps people on campus get around the City without having to rely on a personal vehicle.
- Electric Vehicle Parking and Charging Stations – The City has 18 EV charging stations throughout downtown. There is no additional charge to charge a vehicle at a station. The type of stations, location, and availability of the stations are presented on the DDA's website.

Code Requirements:

The City of Arbor has specific parking provisions and programs that are established a part of their zoning and code requirements, as listed below.

- Provides that lots located in the downtown zoning districts are considered special parking districts and subject to five (5) standards including:
  - To encourage alternative modes of transportation, the parking demand for office buildings were dropped from 4 to 3 per 1,000sf.
  - A maximum parking demand ratio was implemented for many land uses.
  - Bicycle Parking is required for many (most) land uses.
  - For downtown projects, developers are not required to provide parking for up to 400% of FAR.
  - For some mixed-use land uses, 700% of FAR is allowed and parking is required for FAR above 400%.
  - Public parking structures may provide for required off-street parking for developments
- The City permits deferred parking requirements allowing owners to "defer" up to 40% of the required parking spaces shown on an approved site plan until such time as the parking is determined to be needed (not needed).
- Parking standards and ratios are maximum standards. However, the City does permit additional parking to be provided if, "it does not increase impervious surfaces beyond that which would be provided by meeting the maximum parking required. Examples of additional parking may include, but not be limited to, under-structure parking, rooftop parking, or structured parking above a surface parking lot."
- In addition, a number of the City's neighborhoods participate in a Residential Parking Permit Program. This program allows vehicles owned by residents to park in an RPP neighborhood for the posted time limit without being ticketed.

As noted on the DDA interactive web-based map, "The Ann Arbor DDA works to promote downtown vitality. An important strategy is the encouragement of a menu of transportation choices for downtown visitors, residents, customers, employees, and others, who can select their preferred means to come downtown based on factors such as cost, convenience, and environmental interests. Use the interactive map to find locations and information about downtown parking and transportation options."

Parking Pricing:

The City manages six parking structures and 1,750 metered spaces (includes metered on-street spaces and metered lots) within Downtown and near University of Michigan. The off-street parking locations are managed mainly through their parking rate structure that varies by location.

Major Parking Structures

There are 6 larger parking structures downtown. They are $1.10/hour, unless indicated otherwise.

- Ann & Ashley Parking Structure (hourly parking until 4 pm, $3 flat rate entry fee after 4 pm M-F & all day Sat.)
- Liberty Square (Tally Hall) Parking Structure (hourly parking until 3 pm, $3 flat rate entry fee after 3 pm M-F & all day Sat.)

Metered Lots

- There are 9 metered lots throughout the downtown. Cost: $1.40/hour, Monday through Saturday, 8am-6pm. Free on evenings, Sundays and all federal holidays observed by City employees.

Attended Lots and Automated Lots

- Rates: $1.30/hour for the first three hours. $1.50/hour, after the first three hours.

Motorcycle/Moped & Scooter Parking

- Motorcycle and moped scooter parking is currently available free of charge in designated areas throughout the DDA District and the U of M Campus. Locations include: the Fourth and William structure (off the Fourth Avenue entrance), the Maynard Structure (off Thompson St. entrance), the Forest structure (off of Forest St.) and in the Ann and Ashley structure (off of Ashley St).

The metered spaces are managed by the rates and enforcement. Additionally, the City has upgraded many of their existing coin-operated meters to “e-park” solar-powered and smart meters. The new meters provide patrons with additional payment methods and the City with the ability to collect turnover data and restrict overfeeding of meters. These strategies improve availability of parking and enable the City to better monitor and manage parking demand.

Austin, Texas

Introduction:

The City of Austin has a population of approximately 842,592 people (2012) with a vibrant downtown area. In the downtown area the City strives to improve the parking system to improve access for patrons.

On- and Off-street Parking:

The City of Austin has multiple best practices in place to assist in managing their on- and off-street parking system, including the following:

- The City uses new parking meters, residential parking permits, and Parking Benefit Districts to manage the parking availability within various areas of City. There are approximately 9,900 spaces operated by new multi-space pay-and-display and single-space parking meters. These meters provided multiple benefits to the City including the ability to better manage the parking demand, encourage turnover in high demand areas, reduce clutter on the sidewalks, and provide multiple payment methods for patrons.

- The residential parking permit structure was implemented to help protect on-street parking for residents and their guests. Residential areas that surround the Downtown experienced spillover making it difficult to find parking. The residential parking permit program enables residents to establish an area where parked vehicles are required to have a permit.

- Additionally, the City established Parking Benefit Districts in neighborhood where residents or business owners sought the City to install metered spaces. The desire was to improve parking availability within their neighborhoods. In an identified Parking Benefit District, the City will install multi-space meters and use the revenue to make landscaping, sidewalk, and parking improvements within the district.

These strategies assist the City in being able to manage parking availability, manage spillover into residential areas, and provide a parking balance between residents and patrons.

Technology Innovation:

The City of Austin uses new smart multi-space pay-and-display and single space meters that provide multiple payment methods for patrons, restrict time limit, and collect turnover and occupancy data. This new technology increases turnover in on-street parking spaces and the ability to manage parking availability.

Transportation Demand Management:

The City has implemented a carshare system and shared parking permits to encourage sustainability by reducing vehicle miles traveled. The carshare system was implemented through the City partnering with Car2Go and Zipcar. The program lets members have access to a vehicle on as-needed basis without having to own and park a personal vehicle.

Also, the City has established a shared parking permit program. The program lets developers apply for a permit to share parking either in new or existing facility. The application must contain at least two or more of the City defined land uses. These strategies aim at reducing the number of personal vehicles needed within the downtown area as well parking spaces needed.

Code Requirements:

Zoning is the division of land within a jurisdiction into separate districts within which uses are permitted, prohibited or permitted with conditions. Brief definitions of the different types of uses and structures as relates to zoning are explained here. Zoning establishes site regulations, such as building heights, bulk (density/floor-to-area ratio), setbacks, building coverage, impervious cover, etc. Zoning is a power granted to municipalities by the State in order to promote public health, safety, morals, or general welfare, and to protect and preserve places and areas of historical, cultural, or architectural importance and significance.

Zoning Districts are established to promote compatible patterns of land use within the city limits. Zoning districts also establish site development regulations and performance standards appropriate to the purposes and the uses allowed in each district. Distinct zoning districts exist for residential, office, retail and industrial uses. Furthermore, specific use restrictions, site development regulations or performance standards may apply to zoning districts combined with special overlay or combining districts.

As part of the zoning process, appropriate land uses for an area are identified based on such factors as the intensity, density, height of a proposed project, surrounding land uses, traffic impacts and access to a site, environmental concerns and overall compatibility. An illustration of Compatibility: Height and Setbacks shows how compatibility applies to surrounding properties

Austin has detailed Zoning Use Summary Table (Land Development Code) that effectively summarizes a very complex set of codes into a relatively understandable format. (see sample below). The summary table is organized by uses (residential, commercial, industrial, etc.) and references the various land use codes as being either a

ZONING USE SUMMARY TABLE (LAND DEVELOPMENT CODE)

P = Permitted Use C = Conditional Use Permit -- = Not Permitted

RESIDENTIAL USES	LA	RR	SF-1	SF-2	SF-3	SF-4A	SF-4B	SF-5	SF-6	MF-1	MF-2	MF-3	MF-4	MF-5	MF-6	MH	NO	LO	GO	CR	LR	GR	L	CBD	DMU	W/LO	CS	CS-1	CH	IP	MI	LI	R&D	DR	AV	AG	PUD	P
Bed & Breakfast (Group 1)	--	--	P	P	P	--	--	P	P	P	P	P	P	P	P	--	P	P	P	P	P	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--
Bed & Breakfast (Group 2)	--	--	--	--	--	--	--	P	P	P	P	P	P	P	P	--	P	P	P	P	P	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--
Condominium Residential	--	--	--	--	--	--	--	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	C	P	P	--	--	--	P	--	--	--	--	--	--	--	--
Conservation Single Family Residential	--	--	P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duplex Residential	--	--	--	--	P	--	--	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--	P	P	--	--	--	--	--	--	--	--	--	--	--	--
Group Residential	--	--	--	--	--	--	--	--	--	--	--	C	P	P	P	--	--	--	--	--	--	--	C	P	P	--	--	--	P	--	--	--	--	--	--	--	--
Mobile Home Residential	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Multifamily Residential	--	--	--	--	--	--	--	--	--	P	P	P	P	P	P	--	--	--	--	--	--	--	C	P	P	--	--	--	P	--	--	--	--	--	--	--	--
Retirement Housing (Small Site)	--	--	--	--	P	--	--	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Retirement Housing (Large Site)	--	--	--	--	--	--	--	C	C	C	C	C	C	C	C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Single-Family Attached Residential	--	--	--	--	P	--	--	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Single-Family Residential	P	P	P	P	P	--	--	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--	P	P	--	--	--	--	--	--	--	1	P	--	C	3	4
Small Lot Single-Family Residential	--	--	--	--	--	P	P	P	P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Townhouse Residential	--	--	--	--	--	--	--	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	C	P	P	--	--	--	P	--	--	--	--	--	--	--	--
Two-Family Residential	--	--	--	--	P	--	--	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Short -Term Rental [13]	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--	P	P	--	--	--	--	--	--	--	--	--	--	P	--
COMMERCIAL USES	**LA**	**RR**	**SF-1**	**SF-2**	**SF-3**	**SF-4A**	**SF-4B**	**SF-5**	**SF-6**	**MF-1**	**MF-2**	**MF-3**	**MF-4**	**MF-5**	**MF-6**	**MH**	**NO**	**LO**	**GO**	**CR**	**LR**	**GR**	**L**	**CBD**	**DMU**	**W/LO**	**CS**	**CS-1**	**CH**	**IP**	**MI**	**LI**	**R&D**	**DR**	**AV**	**AG**	**PUD**	**P**
Administrative and Business Offices	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	P	P	--	P	P	C	P	P	P	P	P	P	P	P	1	--	2	--	3	4
Agricultural Sales and Services	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	P	P	P	P	1	--	--	--	3	4
Alternative Financial Servics [12]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	C	P	--	--	C	--	P	--	--	--	--	--	--	--	--	--	--
Art Gallery	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	--	--	--	3	4
Art Workshop	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	P	P	P	P	P	C	P	P	P	P	P	P	P	P	1	--	--	--	3	4
Automotive Rentals	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	C	C	C	--	P	P	P	P	P	1	--	2	--	3	4
Automotive Repair Services	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	C	C	C	--	P	P	P	P	P	1	--	2	--	3	4
Automotive Sales	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	C	C	C	--	P	P	P	P	P	1	--	--	--	3	4
Automotive Washing (of any type)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	C	C	C	--	P	P	P	--	P	P	1	--	2	--	3	4
Bail Bond Services [10]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	PC	--	PC	PC	--	PC	PC	PC	PC	PC	PC	--	--	--	--	--	--
Building Maintenance Services	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	P	P	P	P	P	P	1	--	--	--	3	4
Business or Trade School	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	--	--	P	C	P	P	C	P	P	P	P	P	1	--	--	--	3	4
Business Support Services	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	P	--	--	P	C	P	P	P	P	P	P	P	P	1	--	--	--	3	4
Campground	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	C	--	--	--	--	--	--	--	P	P	P	--	--	P	1	--	--	--	3	4
Carriage Stable	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	C	--	--	--	--	--	--	--	--	--	C	--	P	--	--

"permitted use", "conditional use" or as "not permitted".

The City of Austin's Planning and Development Review website offers a range of helpful web-based resources including the following:

- Schedule an inspection online or by phone (Click here for instructions on how to schedule an inspection)
- Search for land development cases, building plan reviews, permits and inspections (Click here for an Information Search Guide)
- Forms and Applications
- Access public records (Council Agendas, Minutes, Ordinances, Resolutions, Municipal Election, Utility District documents)
- Office of the City Clerk
- Look up neighborhood associations on the City's Community Registry
- Adopted Neighborhood Planning Areas (Links to adopted neighborhood plans, future land use maps (FLUMs), and related plan amendments (ordinance numbers)
- Browse through various terms in the Planning/Development Glossary
- Zoning Program
- Zoning Profile Tool

They also offer the following instructional videos:

- Land Use and Development - These training videos provide an overview of City of Austin's development services including regulations, development review, permitting, inspections, trees and recognizing the impact of development.
- Watershed Protection Ordinance - These training videos provide an overview of the basic concepts of the Erosion Hazard Zone requirements of the Watershed Protection Ordinance and an overview of the Watershed Protection Ordinance's rules regarding floodplain modification.

In the area of "Geographic Information Resources", the city provides:

- Development GIS Viewer - GIS tool featuring views to Development, Planning, Zoning, Drainage and Floodplain information.
- GIS Data Downloads
- Watershed Locator Viewer
- Zoning Profile Tool
- All City of Austin GIS Web Map Viewers

In the area of "City Code Information" the City provides:

- Austin Online Code Library
- Austin, Texas - Code of Ordinances •Standards and Standard Specifications
- Technical Criteria Manuals
- Specific Area Regulations (North Burnet/Gateway, Lamar/Justin, MLK, Plaza Saltillo)
- Building Technical Code Interpretations
- Proposed Land Development Code Amendments

Miscellaneous

- Development Review General Case Number System Guide
- How to Research Your House
- How to select a Contractor

The City also offers a training video related to design standards and mixed use development. The video focuses on the standards used to raise the quality of nonresidential and mixed use development in Austin by providing minimum standards for site and building design. The video can be accessed at: https://www3.ci.austin.tx.us/dsmu/.

The City of Austin's Zoning Code website also provides a useful section called: **In My Neighborhood** which provides links and other resources related to larger community planning, community outreach resources and other data. The links associated with the: "In My Neighborhood" section includes:

- Media Contacts
- Social Media
- Contact Us
- Subscribe to Email Newsletters
- Data Portal
- SpeakUp Austin
- AustinGo
- Open Government Resources
- Council Meeting Information Center
- Boards and Commissions Information
- Public Information Request Form

Berkeley, CA

Introduction:

Berkeley is a city on the east shore of San Francisco Bay in northern Alameda County, California which is named after the eighteenth-century bishop and philosopher George Berkeley. It borders the cities of Oakland and Emeryville to the south and the city of Albany and unincorporated community of Kensington to the north. Its eastern border with Contra Costa County generally follows the ridge of the Berkeley Hills. Its population at the 2010 census was determined to be 112,580. It is one of the most politically liberal cities in the United States.

The City of Berkeley provides parking for residents and visitors, as set forth by local parking ordinances. This Parking Information site contains information regarding parking garages and lots, parking restrictions, parking permits, and parking fines.

On- and Off-street Parking:

Parking Meters
Parking meters were installed in the City of Berkeley in response to the growing problem of parking congestion. Over the years, parking meters have evolved from all-mechanical, to digital, to state-of-the-art smart meters we use today to assist businesses by limiting the amount of time a motorist may park in a space, thus creating turn-over of available curbside parking for short-term visitors and customers. Motorists seeking long-term parking (over 90-minutes, all-day, or commuter parking) can find more favorable pricing in the City's Off-street parking garages and lots.

Currently City of Berkeley is using three types of meters, the Calé multi-space meter (EZ Park Pay Stations), the IPS single-space meter, and the Duncan Solution single-space meter, to monitor over 3700 parking spaces. All meters accept nickels, dimes, quarters. The Calé Multi-space and IPS single-spaces meters also accept small one-dollar coins, credit and debit cards with Visa and MasterCard logos.

Parking Meter Rates
Standard Parking Rate

On October 13, 2009, the Berkeley City Council passed Resolution 7,109—N.S. establishing the current standard citywide meter rate at $1.50 per hour for on-street meters.

Off Street Parking (Garages & Lots)

The City of Berkeley owns and operates three public parking garages and two off-street parking lots. The Center Street, Telegraph Channing and Oxford parking facilities are all conveniently located and fully automated parking garages. Each garage accepts coin, currency and credit card (Visa, MasterCard) payment methods, at pay-on-foot (POF) machines within the facilities. As an alternative option, patrons may use their credit card upon garage entry at the gate arms to gain access and upon exit use the "same" credit card at the gate arms to exit to expedite their parking experience.

The surface parking lots are the Berkeley Way Lot located on Berkeley Way between Milvia and Shattuck Avenue and the Elmwood Lot on Russell Street just west of College Avenue. Both parking lots use pay-and-display EZ Park Paystations for parking fee payments. The Park EZ stations accept coins and credit cards (Visa and MasterCard).

Transportation Demand Management:

Other Access and Mobility Plans

The City of Berkeley Transportation Website also offers link to the following plans:

- Pedestrian Master Plan - Berkeley Pedestrian Master Plan
- Berkeley Bike Plan - Berkeley Bike Plan
- Transit and Commuter Info –
    - Commuter Programs & Public Transportation
    - Guide to Low Emission Vehicles
    - TDM Management Study
    - Travel Choice
    - Bicycling and Walking-Maps and Guides

Public Works Transportation Division supports many commuter programs to help Berkeley residents, students and employees reduce their dependence on single-occupant automobile commuting. This web site provides information on the following:

- The Tax Relief Action to Cut Commuter Carbon (TRACC) :
    - Commuter Benefit Services for Employers
    - Sample Enrollment Forms
    - Frequently Asked Questions (PDF)
    - Information about commute benefits in other languages (via SFEnvironment web site)
- Commute Programs:
    - Guaranteed Ride Home Program
    - Ridematching for carpools and vanpools
    - Transportation Programs at UC Berkeley

- Transit Information:
    - 511 Transit Information (or dial 511)
    - Getting There on Transit: San Francisco Bay Area Route Maps and Popular Destinations
    - Clipper, the Bay Area's Smart Card for Transit
    - AC Transit Local and Transbay Bus Service
    - Other Bus Services in Berkeley
    - Paratransit Services
    - Rail Service in Berkeley ◦Bay Area Rapid Transit (BART)
    - Capitol Corridor (train service from San Jose to Sacramento)
    - Connecting AMTRAK passenger rail services

Technology Innovation:

goBerkeley Parking Pilot (launched: October 15, 2013)

On July 2, 2013, the City Council passed Resolution 66,245-N.S. and Ordinance No. 7,305 – N.S. that adopted value pricing approaches to develop on-and off-street parking management , demand-responsive pricing by time-of-day and day-of-week, progressive (escalating hourly) pricing, and price coordination between off-street and on-street parking rates to encourage short-term on-street and longer-term parking off street.

Zones within the goBerkeley Pilot Program are comprised of approximately 2000 parking spaces. There are 3 different hourly parking rate structures: Premium 2-hour, Premium 3-hour (escalating), and Value 8-hour.

The goBerkeley program launched on October 15, 2013. Based on parking demand patterns, rates and time limits were adjusted on June 2, 2014.

The links below will provide additional information about the goBerkeley program:

- Parking Meter Zone Fact Sheet
- go Berkeley Pilot Parking Rates and Locations (pdf)
- go Berkeley Parking Zone Map
- Standard Citywide Parking Rates and Locations (pdf)

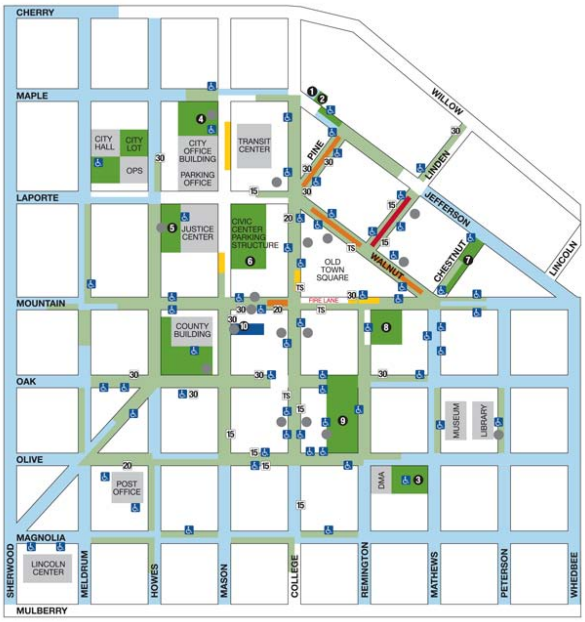
Fort Collins, CO

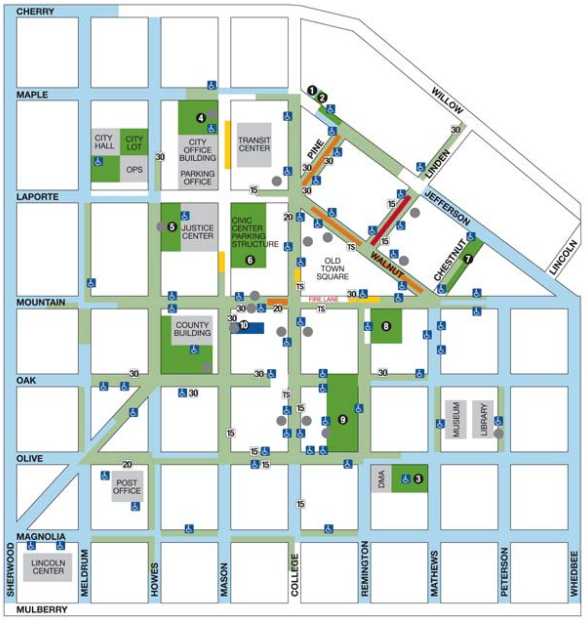
Introduction:

The City of Fort Collins has a population of approximately 148,612 people (2012) and manages approximately 5,572 on- and off-street public parking spaces throughout the City. There are an additional 4,865 off-street spaces that are operated by private businesses.

On- and Off-street Parking:

In general, the on-street parking in the core of downtown has 2-hour time limits, while the parking around the periphery of downtown has free, open, all-day parking. On the map below, the 2-hour parking is shown in the light green while the free, open, all-day parking is shown in light blue.





In the Downtown area, the City of Fort Collins has two parking structures and five surface lots available for both hourly and permit parking. Hourly rates for parking structures are $1 per hour, with the first hour free. The Residential

The City invested in a Parking Strategic Plan as an element of larger Downtown Strategic Plan in 2004. The Parking Strategic Plan was updated in 2011. The following summarizes some of the strategic plan program elements:

1. Comprehensive Approach

   One important key to the success of this plan is the need for a “comprehensive approach to parking planning and plan implementation”. It is important to recognize the inter-related nature of the plan elements and how they relate to each other. While it may be tempting to take a single recommendation and consider it in isolation, this approach is much less likely to advance the parking program. It is the comprehensive and balanced

approach of this plan, integrating parking management, urban planning, mobility management, economic development and long-term funding strategies, that is at the heart of this plan. Attempting to implement specific elements in a stand-alone fashion reduces the probability of achieving the desired results. (Randy and Timothy to rewrite)

2. Leverage Public Parking Investment to Stimulate Targeted Private Development

   Public parking investment can be a powerful economic development incentive to help spur private development of projects that align with adopted community strategic goals. Other key goals of this policy include:

   - Provide better distribution of public parking assets through public/private partnerships
   - The creation of new public parking capacity to promote smaller adaptive reuse and in-fill projects
   - Develop guidelines to inform an expectation of a return on public sector parking investments

3. Development-related Parking Management Strategies

The City's development-related parking management strategies will support and be consistent with the economic health and urban design principles in Plan Fort Collins and other adopted plans. In general, that means parking strategies must be sustainable while being fully integrated as an element of community and economic development strategies.

- Coordinate and consolidate parking into shared locations
- Integrate parking planning into the larger "Downtown Business Strategy" context Define development project value—direct and indirect economic benefits
  - Define development project value—advancement of community/master plan goals
  - Provide criteria for when to offer incentives
  - Tie incentives to promotion of community supported goals
  - Utilize tools such as the "Parking Demand Model"
- Designate a public entity to coordinate all new parking proposals and promote public-private partnerships for new parking infrastructure
- Implement development parking impact fees for the construction of new parking
- Parking management will support the development-related goals of the Mason Corridor and the Downtown River District
- Review and, if necessary, revise City codes to ensure parking supports City goals for the Downtown

4. Employee Parking & Garage Usage Guidelines

- Off-street parking in garages or surface lots will be managed primarily as areas for Downtown employee parking.
  - Provide incentives and disincentives to shift employees away from parking in high-demand locations
  - Promote better utilization of parking garages and other off-street spaces through innovative permit programs and the involvement/cooperation of Downtown businesses
  - Off-street garages and surface lots should also be managed to accommodate parking for the general public as a less expensive option to on-street parking

- Develop a strategy for construction of new parking infrastructure when existing infrastructure and programs are insufficient to meet parking demand, but only in a manner that is coordinated with the on-street parking management program

5. Residential/Neighborhood Parking

   Residents in neighborhoods near commercial areas or CSU should have preferential access to the on-street parking on their block face.

   - Residents benefiting from a parking permit program will be expected to bear a reasonable amount of the costs of providing and administering the preferential access
   - Develop criteria to determine when a residential permit program will be implemented, such as what percentage of residents must agree to the program before it is put in place
   - Develop other residential permit program criteria, such as how to verify residency, pricing of permits, and number of permits per residence

6. Integrated Access Management Approach

Parking management programs will support an integrated, multi-modal approach to Downtown access. Parking programs should emphasize good urban design, walkability, and strong support for transportation alternatives.

- Optimize the use of existing parking resources before building new facilities
- Encourage downtown employers to provide mobility options and programs to reduce parking demand
- Establish a program for the installation, maintenance, and replacement of bike racks and covered bike parking in the public right of way
- Develop criteria for the placement and use of electric vehicle charging stations in public facilities, both on- and off-street
- Implement a program that encourages the use of car-pool and fuel-efficient/ low-emission vehicles through preferential parking spaces in public facilities, both on- and off-street
- Provide large vehicle parking within walking distance of Downtown for visitors arriving by private bus and recreational vehicles
- Identify and focus on “synergistic strategies and programs” that can solve multiple parking and transportation problems with one solution or application. Create a performance measurement program to evaluate parking policies and strategies

7. Enhancing the Downtown Experience

   Customer service will be the top-priority focus in the delivery of the Downtown parking experience.

   - Develop a clear and identifiable marketing, education and communication strategy for the parking program.
   - Utilize new technologies that enhance the customer experience, such as cell-phone apps that identify available parking spaces.
   - Fines and enforcement should take a “common sense” approach to creating compliance and safety. Revenue generation is not the primary motivation for the enforcement program.
   - Parking facilities should be attractive, clean, safe, easy to use, and inviting.

- Provide ways for customers and visitors to park on-street for longer than two hours without encouraging Downtown employees to use the on-street parking.

Zoning Code Requirements:

The City is progressive in their current parking codes and requirements through the use of maximum parking standards as well as required bicycle parking; the City does not require a minimum parking standard. The City's code takes into consideration the availability of shared parking as well as on-street parking for owners when calculating the maximum required parking for a specific use(s). Note, where on-street or shared parking is not available, the City permits an increase in the maximum parking standard of 20 percent. In addition, the City uses a simplified listing (generalized categories) of non-residential uses as compared to either zoning or use specific standards.

In order to further support the City's Transit Oriented Development (TOD) standards, reduced maximum parking standards are provided for residential uses within the district. The TOD standards generally result in an approximate 30 percent reduction in the parking standard (Note: this standard is referenced as a minimum standard not a maximum standard).

The City also allows for Alternative Compliance which permits owners to request alternative compliance parking ratio plans generally accompanied by either a traffic impact study or other relevant data. Measures specific to an alternative compliance approach include the following:

- Shared parking;
- Off-site parking;
- Parking pricing;
- Transit pass program;
- Unbundling parking spaces from residential dwelling units;
- Rideshare, guaranteed ride home programs, car sharing, shuttle services;
- Enhancements that encourage bicycle and pedestrian mobility; and
- Other verifiable parking demand reduction measures.

These strategies assist the City in promoting shared parking and alternative modes of transportation through their zoning and code requirements.

Madison, WI

Introduction:

The City of Madison has a population of approximately 240,323 people (2012). The City manages a parking system that includes approximately 18 parking garages and lots that vary in parking rates. The parking program is organized as a "parking utility".

On- and Off-street Parking:

- The City has manages on- and off-street parking spaces. To assist the City in managing their parking system they have implemented single- and multi-spaced meters in addition to preferential residential districts.
- Current Parking Availability – The City now offers on-line feature that provides data on current parking space availability in six of their parking garages.
- The City of Madison Parking Utility and Metric Meters have installed multi-space meters in the downtown area. These meters provide the option to use a credit card as well as coins. You may pay for any multi-space controlled parking space at any multi-space metered pay station.
- The City's multi-space parking meters have recently added a new "over-payment prevention and pre-payment features".
    - As part of a continuing effort to improve the functionality of the Multi-Space Metered Pay Stations in the City of Madison, the Parking Utility has upgraded the pay-station software to include over-payment prevention and pre-payment features.
    - Payment will only be accepted during the hours of enforcement which are 8 am to 6 pm, Monday through Saturday.
    - Any payment made between 6 am and 7:59 am is considered a pre-payment and will be applied beginning at 8 am.
    - Payment will not be accepted prior to 6am or after 6 pm. Payment will not be accepted during other time periods when parking is prohibited.
    - Any payment made with credit or debit card will auto-complete (see below) with an expiration time of 6 pm if the amount entered would extend parking beyond 6 pm, subject to time limits. The card will only be charged for the time that falls within the enforcement limits.
    - Any payment made with coin will auto-complete (see below) with an expiration time of 6 pm once a sufficient number of coins have been entered to extend parking to 6 pm, subject to time limits. Any additional coins entered will be released to the coin return.
    - If a space is within a restricted zone, any transaction which attempts to purchase parking beginning when the space is unrestricted and extending into the restricted time period will auto-complete with an expiration time that corresponds to the end of legal parking.
    - Some off-street facilities are enforced and require payment 24 hours a day, seven days a week.
- The City also recently implemented an auto-complete feature installed on multi-space metered pay stations
    - Credit / Debit Card Transactions: Once the maximum allowable parking time is displayed during a credit / debit card transaction, either by pressing the blue buttons or by pressing the blue "MAX" button, the receipt will print automatically, completing the transaction.

  - Coin Transactions: Once a sufficient number of coins have been deposited to pay for the maximum allowable parking time at the space number entered, the receipt will print automatically, completing the transaction.
  - All Transactions: The automatic printing of the parking receipt indicates that the maximum allowable parking time for the space number entered has been purchased. Under these circumstances ONLY there is no need to press the green button.
  - For detailed step-by-step instructions see this page: How to use the multi-space metered pay stations.

- The City also offers Park and Walk locations that have a reduced parking rate and longer parking times.
- Residential permit parking districts were established in residential areas that have a high on-street parking demand. These districts were implemented to make it easier for residents and their guests to find spaces in close proximity to their resident and are signed as residential parking only.
  - Residential Parking Permit system improvements:
    - The permit costs $21.00 for the Sept. 1, 2014 to Aug. 31, 2015 period. Replacement permits cost $5.00.
    - The purpose of the Residential Parking Permit Program is to provide residents the opportunity for the limited storing of vehicles on public streets to the partial exclusion of commuter vehicles.
    - People who live in an area covered by the Residential Parking Permit Program may purchase permits from the Madison Parking Division Office. These permits allow residents of that area to exceed the posted one or two hour parking limit on the street.
    - Several permit parking areas in the Central Business District are very crowded due to a large number of vehicle owners living in the area and there being only a few streets suitable for residential parking. Therefore, the permits allow residents of an area to park for longer than one or two hours when they find a space.
    - A Residential Parking Permit does NOT guarantee you a parking place. It allows you the right to park IF you find a parking space.
    - We suggest that residents of Areas 1, 2, 3, 4, 5, and 9 seek alternatives to on-street parking for their vehicles. The number of permits issued is greater than the number of on-street parking spaces available in these areas. Map of Residential Parking Permit Areas (PDF)
- Electric Vehicle Charging Stations In City Of Madison Parking Facilities:
  - Eight electric vehicle charging stations are now available in City of Madison parking facilities
  - Madison Gas and Electric has provided 8 Electric Vehicle Charging Stations (EVCS) in City of Madison parking facilities as part of a pilot program to study their use and reliability.
  - These stations are available in the following locations:
    - Overture Center Garage 318 W. Mifflin St.
    - Capitol Square North Garage 218 E. Mifflin St.
    - State Street Campus Garage, Lake Street entrance 415 Lake St.
    - Wingra Parking Lot 1701 Monroe St.
  - Each facility listed above contains one ADA (Americans with Disabilities Act) compliant charging station and one station available to the general public.

During the pilot phase of this project charging is available at no cost. Visit the Madison Gas and Electric website to set up an account: www.mge.com/my_mge/serviceforms/EVChargingStudy.htm

Transportation Demand Management:
Current TDM Programs and Activities

The Madison Area MPO employs a full-time ridesharing coordinator whose responsibilities include coordinating public and private employer programs, ride-matching services, and staffing a Ridesharing Coordinating Committee, which coordinates the ridesharing and alternative transportation promotion activities of the various governmental agencies involved in such efforts. Along with the MPO, these include the Wisconsin Department of Transportation, Wisconsin Department of Administration, Metro Transit, UW-Madison, Dane County, and the City of Madison.

Madison Area MPO Rideshare Etc. Program

The Madison Area MPO sponsors the Rideshare Etc. program to implement on-site TDM/Ridesharing programs primarily at the larger public and private work sites in the Madison area. Information and assistance is provided to employers to tailor programming activities to their work site and to provide ongoing support. The program maintains a database of over 1,500 carpoolers, as well as information on Metro Transit bus routes, State Vanpool Program routes, Park-and-Ride lots, and bicycle facilities. In addition, marketing materials are distributed, including brochures, displays, and radio messages.

In the fall of 2006, Web-based ride matching was added to provide an additional tool for commuters interested in interactively accessing information about alternative modes of transportation for commuting. The Rideshare Etc. program service area covers 48 counties in south central Wisconsin and Northern Illinois.

The employer-sponsored programs generally consist of naming a company ridesharing coordinator, distributing in-house publicity, providing ride-matching services, and setting up a ridesharing booth to be used in conjunction with question-and-answer periods to assist employees to start ridesharing and/or utilize other alternative transportation. Employee surveys are sometimes conducted. Assistance and information is also provided on implementation of incentives/disincentives for employees to use alternative transportation.

Employer-based TDM programs are generally the most effective in reducing single occupant vehicle trips, and work trips are the easiest to shift to alternative transportation modes. TDM strategies can be chosen to meet the specific needs of the employees based upon the worksite characteristics and the employees' demographic and travel characteristics. In addition, a corporate "culture" can be created that reinforces the TDM message.

In 2005, it is estimated that the direct impacts of the Rideshare Etc. program resulted in a reduction of 18.9 million vehicle miles of travel (VMT), over 2,000 required parking spaces, and 47 and 38 tons of smog-producing nitrogen oxide (NOx) and volatile organic compound emissions respectively, and also resulted in savings by workers of over $4.5 million in commuting costs.

Transit Incentives

Commuter Choice Program Metro Transit offers a Commuter Choice Program whereby employers purchase bus passes or tickets from Metro for their employees. This allows employees to purchase the bus pass/tickets at a pre-tax rate. Employers have the option of subsidizing all or part of the cost of the pass/tickets. Employers benefit through reduced payroll taxes and can deduct the cost of providing the transit benefit as a business expense. Around 25-30 employers currently participate in the program, including the State of Wisconsin.

Group Unlimited Bus Pass Program

This is a program negotiated by Metro with the major universities and employers whereby the university or employer purchases heavily discounted passes for all of its students or employees regardless of whether they choose to participate in the program. The passes are then generally provided to students/employees for free or a modest cost. The price of the passes is based upon anticipated ridership considering the employer location, available bus service, etc. For small employers, the program could be negotiated with a transportation management association, if one were created for an employment site. Metro has negotiated student bus pass programs with UWMadison, Edgewood College, and MATC. In the case of UW and MATC, the schools then charge all students a semester fee for the bus pass, which allows unlimited use of all Metro bus routes. The UW program was expanded in 2002 to cover employees, including UW Hospital & Clinics employees. Metro has also negotiated an unlimited ride pass program with the City of Madison and Saint Mary's Hospital for its employees and is in the process of setting up a program for Meriter Hospital employees. Employees receive free bus passes. Metro has also begun discussions with Wisconsin Department of Administration (WisDOA) staff about a possible program for all state employees.

By providing free bus service for all students/employees, the unlimited ride pass program provides a large financial incentive for riding the bus. The incentive is much greater than with the Commute Choice program for employers. Passes are free or heavily discounted and passes are available for all employees versus only those who choose to participate as with the Commute Choice program. This may persuade some employees to try taking the bus, at least on some days. The bus pass programs have been hugely successful in boosting transit ridership.

Regional Transportation Plan 2030 101 November 2006

Smart Commute Initiative

Smart Commute is a loan program that gives homebuyers the chance to qualify for a larger mortgage if they purchase a home along a Metro route. Participating lenders are able to add a portion of the homeowner's potential transportation savings ($200 per month for one wage-earner households, $250 per month for two wage-earner households) to their qualifying income. Program participants are also eligible for other benefits by program sponsors, including a trial membership to Community Car of Madison, a member-based, car sharing organization (see information on next page). There are four banks that currently participate in the program.

Guaranteed Ride Home Program

The Guaranteed Ride Home program provides taxi vouchers to support commuters that use an alternative mode of transportation so they are not stranded at work if an emergency comes up and they need to get home quickly. Research has shown that lack of access to transportation in an emergency has been a barrier to using the bus, carpooling, vanpooling, or bicycling to work.

The program is available to participants in the MPO's Rideshare Etc. Program and is jointly administered by the Madison Area MPO and the Dane County Highway & Transportation Department and funded by the Department. The program provides vouchers good for up to $35 per ride for a maximum of three rides per year. UW-Madison Transportation Services has a guaranteed ride home program for UW employees who do not drive to work. Employees can get a taxicab ride or fleet vehicle escort (for those living more than 30 miles away) up to three times every six months. The Wisconsin Department of Administration also provides transportation home for vanpool participants in emergency situations.

State Vanpool Program

The Wisconsin Department of Administration administers a State Employee Vanpool Program to provide vanpool services to major employment sites. There are currently 72 vanpools in operation with most traveling to downtown and the UW campus. Other destinations include Hill Farms and the Fish Hatchery Road/Greenway Cross area. Riders pay a fare calculated to cover operating and capital costs. A minimum of one state employee is required on each van, but non-state employees are also welcome to ride.

UW-Madison Program

UW-Madison employs a TDM coordinator and has a comprehensive TDM program covering all alternative modes of transportation. The university provides free campus bus service, funds Metro Route 53, which provides park-and-ride service to campus from the UW Research Park, and contracts with Metro for unlimited ride pass programs for employees and students. Bus passes are free for employees, while students pay a low semester student fee ($35 for 2006-'07) for the pass. The UW Medical School provides frequent shuttle service between the hospital and the East and West side UW clinics. UW also has a flex parking system for many lots whereby employees receive a refund for days they do not park on campus.

Bicycle Programs

Assistance is available to employers on how to facilitate the needs of bicycle commuters as well as how to promote and encourage bicycling. The Madison Area MPO ridesharing coordinator provides bicycle maps and other information as part of employer-sponsored programs and works with the City of Madison's Bicycle Program Coordinator. The Wisconsin Bicycle Federation is also available as a resource and has conducted employer programs in the past as part of grant projects. UW-Madison employs a Bicycle Coordinator to promote bicycling on campus. The university also has a bike ambassador program to promote bicycling and walking through a variety of avenues such as safety clinics, bike maintenance/repair classes, and bike tours. Dane County has a limited number of bicycle lockers available for rent downtown. The City of Madison has bicycles available for use by city employees. Metro Transit has bicycle racks on all its buses and they are very popular and heavily used.

Community Car Program

Community Car is a member-based car sharing organization that provides cars by the hour for individuals and organizations. Members share access to a fleet of high gas-mileage and hybrid gas-electric vehicles located in reserved parking spots in the central Madison area. Car sharing is for people who do not need a car every day and are able to walk, bus, bicycle, or carpool for the majority of their transportation needs.

Parking Management

Studies have shown that the availability of free parking is one of the most important factors in an employee's decision on whether or not to use an alternative mode of transportation to work. This was confirmed in interviews conducted with Madison and Milwaukee area employers as part of a 2002 WisDOT-sponsored study evaluating subsidized transit passes, pre-tax transit benefits, and parking cash-out programs in Wisconsin.

Managing parking supply and cost is most feasible downtown and on the UW-Madison campus due to limited land availability. It also may be possible at other high intensity activity/ employment centers with structured parking. However, parking management is a complex balancing act. Parking policies that discourage solo driving help to mitigate traffic congestion downtown and the quality of the neighborhoods. They also reduce the need for the city and university to provide expensive parking facilities, using up limited land. On the other hand, adequate provision must be made for parking that is not too expensive in order for the city to maintain downtown as a retail and employment center and for the university to attract and keep qualified employees.

Downtown Madison Parking

The City of Madison owns five downtown parking ramps and four surface parking lots with a total combined parking capacity of around 3,850 spaces. Dane County owns a downtown parking ramp with a capacity of 1,000 spaces and the State of Wisconsin owns the Monona Terrace Convention Center ramp with a normal capacity of around 550 spaces. In addition, there are numerous private parking facilities downtown that offer daily and monthly parking.

The most recent public parking capacity additions include the construction of the convention center ramp and the addition of 400 spaces in the State Street-Capitol (Dayton) ramp. A new mid-State Street ramp has been proposed on the Buckeye parking lot site off Gorham Street, but no agreement has been reached on project details. The City is also exploring the possibility of combining the ramp with a mixed-use development.

Around 10% of the parking spaces in the City of Madison ramps and lots are reserved. Monthly parking rates for these spaces vary by location from $100 to $133. The city also charges an extra $15-$23 per month to non-residents. By comparison, in 1980 the monthly rate was $49. The rate for non-reserved spaces in the parking ramps is $0.70 to $1.10 per hour, depending upon the ramp. Three increases in parking rates have been instituted since 2002 in order to generate revenue for the planned reconstruction of the Government East ramp and construction of a planned mid-State Street ramp.

There are waiting lists for the monthly spaces at the ramps, however the city has limited the number of monthly spaces as part of its policy to encourage downtown commuters to use alternative modes of travel. The parking rate at the Dane County ramp for non-employees is $0.75 per hour. The parking rate at the Convention Center ramp for non-employees is $1.10 per hour with a daily maximum of $12.50. Qualifying state employees who do not receive an assigned parking space as part of their employment pay $74 per month.

Rates at private parking ramps in the downtown area are comparable.

Zoning Code Requirements:

The City of Madison has fairly progressive parking standards as part of their zoning code.

The Statement of Purpose outlines the overall goals which include:

- Establishing minimum and maximum parking requirements, and standards for the layout and design of parking spaces, lots and structures.
- It also includes shared parking incentives, and reduction of off-street parking in favor of transit or other travel modes.
- The standards in this section are intended to:
    - Encourage reduction of surface parking as a means of reducing dependence on private automobiles and reducing the pollution and congestion that are associated with automobile use.
    - Encourage reduction of impervious surface to control run-off.
    - Encourage reduction of surface parking as a means of fostering more compact development patterns and encouraging transit, bicycle and pedestrian circulation.
    - Minimize the adverse effects of off-street parking and loading on adjacent properties.
    - Minimize spillover on-street parking in neighborhoods.
    - Encourage shared parking arrangements that will support mixed-use development and compact development patterns.
    - Encourage bicycle circulation by providing bicycle connections, adequate parking, and storage space for bicycles.
    - Encourage parking locations that do not disrupt Madison's traditional streetscape.
- Certain districts do not require off-street parking, as set forth in Table 28I-2.
- Where off-street parking is required, Table 28I-3 establishes the minimum number of automobile parking spaces required, the maximum number of automobile parking spaces permitted, and the minimum number of bicycle parking spaces required, for the uses indicated. Off-street parking may be waived or reduced under specific conditions, as set forth in Table 28I-4.
- No Minimum Parking Required.
    - In the Central area, as defined, and the following districts, there is no specified minimum requirement for off-street parking of automobiles, with the exceptions specified in Table 28I-2 below.
- Maximum parking and bicycle parking requirements apply as specified in Table 28I-3.
- For conditional uses, parking requirements may be established as a condition of approval.
- Chapter 28 of the Madison Zoning Code can be found at: https://library.municode.com/HTML/50000/Chapter%2028%20-%20Zoning%20Code.pdf

Palo Alto, California

Introduction:

Palo Alto is a charter city located in the northwest corner of Santa Clara County, California, in the San Francisco Bay Area of the United States. The city shares its borders with East Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford, Portola Valley, and Menlo Park. It is named after a coast redwood tree called El Palo Alto.

As of the 2010 census, the city's total resident population is 64,403. Palo Alto is one of the most expensive cities in the United States and its residents are among the most educated in the country. Downtown Palo Alto is a regional retail and entertainment attraction center with vibrant professional office and service commercial center.

Parking is provided for visitors and customers in the Downtown Business District and California Avenue Business District on the street, in off-street parking lots and in parking garages.

The City actively monitors parking in and around the Downtown and is committed to work with commercial and residential interests to balance the demands of parking with measures to minimize its impacts on adjacent residential communities. The following are some program elements:

- Free parking is provided for visitors and customers in the downtown area and California Avenue business district on the street, in off-street parking lots and in parking garages.
- Two-hour parking is provided in on-street spaces and in surface lots.
- Three-hour parking is provided in parking garages except in designated permit areas.
- Residential Preferential Parking (RPP): The Downtown Palo Alto Residential Preferential Parking (RPP) Program is being developed in response to concerns about non-resident parking in residential neighborhoods. The Downtown RPP Stakeholder group is in the process of finalizing their recommendations to City Staff for the design of the Downtown RPP.
- Enforcement of parking regulations is conducted from 8 a.m. to 5 p.m., Monday through Friday. Enforcement is NOT in effect before and after those times and on weekends and holidays. Restricted areas such as red curbs, spaces designated for persons with disabilities and any other locations prohibited by law are always in effect. Parking time limits are also enforced in signed two-hour on-street parking areas outside the Color Zone starting from the south side of Forest Avenue in downtown area.
- Color Zone Parking:
    - The core business district of downtown Palo Alto is divided into four color-coded parking zones: Purple, Coral, Lime and Blue. Once the time limit expires in a given color zone you must move your vehicle out of that zone. Vehicles will be ticketed if they are reparked in the same color zone within the same enforcement day.
    - Example: You park in a 2-hour space on the street in the Lime Zone at noon. (You may repark within the Lime Zone only during your initial two hours should you need to.) However, if you leave before the 2 hours are up, you cannot repark later that same day. Your car must leave the Lime Zone by 2 p.m. You may park in any other Color Zone except the Lime Zone, which you are now leaving.
    - Thirty-minute green parking zones, yellow commercial loading zones, white passenger loading zones and blue disability designated spaces are exempt from the color zone reparking requirement.

- Click the link below to view the downtown Color Zone parking map: http://www.cityofpaloalto.org/civicax/filebank/documents/3904

PARKING IN DOWNTOWN PALO ALTO

Please refer to the map on the reverse side to find convenient short-term and long-term parking options in downtown Palo Alto.

Free Parking

Parking is provided for visitors and customers in the downtown area on the street, in off-street parking lots and in parking garages.

- Two-hour parking is provided in on-street spaces and in surface lots.
- Three-hour parking is provided in parking garages except in designated permit areas.

Enforcement of parking regulations is conducted from 8 a.m. to 5 p.m., Monday through Friday. Enforcement is NOT in effect before and after those times and on weekends and holidays. Restricted areas such as red curbs, spaces designated for persons with disabilities and any other locations prohibited by law are always in effect.

Parking outside the color zone? Parking time limits are also enforced in signed two-hour on-street parking areas outside the Color Zone starting from the south side of Forest Avenue.

Color Zone Parking

The core business district of downtown Palo Alto is divided into four color-coded parking zones:

- Purple, Coral, Lime and Blue.
- Parking enforcement in effect Monday through Friday 8 a.m. to 5 p.m.
- Once the time limit expires in a given color zone you must move your vehicle out of that zone.
- Vehicles will be ticketed if they are reparked in the same color zone within the same enforcement day.

Example: You park in a 2-hour space on the street in the Lime Zone at noon. (You may repark within the Lime Zone only during your initial two hours should you need to.) However, if you leave before the 2 hours are up, you cannot repark later that same day. Your car must leave the Lime Zone by 2 p.m. You may park in any other Color Zone except the Lime Zone, which you are now leaving.

Thirty-minute green parking zones, yellow commercial loading zones, white passenger loading zones and blue disability designated spaces are exempt from the color zone reparking requirement.

All Day Visitor Parking

If the two-hour or three-hour time zones aren't sufficient, visitors may purchase a one-day permit. Permits are valid in all off-street parking lots and garages. All-day permits are not valid for on-street parking spaces. Members of the parking assessment district may purchase daily permits in advance for visitors and guests to the downtown.

All permits may be purchased at Palo Alto Civic Center, 250 Hamilton Avenue on the first floor at Revenue Collections.

A privately owned pay garage is located at 525 University Avenue.

Construction worker vehicles require a special permit that can be purchased at the City of Palo Alto Development Center, 285 Hamilton Avenue.

Permit Parking for Employers and Employees

Employees of businesses in the downtown parking assessment district may purchase quarterly or annual permits for long-term parking in any of the nine off-street parking lots and garages. Parking permits are issued for these locations (see map) – Civic Center Garage (CC), High/Alma South Garage (R), High/Alma North Garage (Q), Bryant/Lytton Garage (S/L), Webster/Cowper Garage (W/C) and the following surface lots – Gilman/Bryant Lot (E), Gilman/Waverley Lot (G), Lytton/Waverley Lot (K), Lytton/Kipling Lot (T). Permits are also available at a reduced rate the Sheraton Lot (X) in signed permit parking area.

Transferable Permits are also available for the following garages: Webster Cowper (WC), Bryant Lytton (S/L), and Civic Center (CC). Transferable permits are sold to one individual and can be used on multiple vehicles. Transferable permits are sold at a two- quarter maximum.

Permits are sold on the first floor of Palo Alto Civic Center, 250 Hamilton Avenue at the Revenue Collection Counter.

Public Transportation

Palo Alto is served by several transit agencies including Caltrain commuter rail, Samtrans busses, Valley Transportation Authority (VTA) busses, Dumbarton Express busses and the Marguerite and Palo Alto Shuttles. The University Avenue Transit Center is a popular destination for many transit riders.

Transit schedules are available at Palo Alto Civic Center, at the Caltrain Depot and on the internet at www.511.org. Transit, rideshare, traffic and bicycling information can be obtained by dialing 511on the telephone.

The Marguerite and Palo Alto Shuttle systems are free. The Marguerite Shuttle serves the Stanford University Campus and surrounding locale. The Palo Alto Shuttle runs two routes in Palo Alto and serves many popular destinations.

- Shuttle information: Palo Alto Shuttle: 650-329-2520 or www.cityofpaloalto.org/transportation/shuttle Marguerite Shuttle: 650-723-9362 http://transportation.stanford.edu
- Ridesharing information: Ridesharing information for carpool or vanpool services can also be obtained at www.511.org or by calling 511.
- Bicycling: Ample bicycle parking is available throughout the downtown business district. Local bicycling information is available on the Internet at www.cityofpaloalto.org/bike.

Q & A

I come downtown several times a day. Is there short-term parking available?
Yes, there are several 30-minute parking spaces throughout the downtown area (see map). These parking spaces are exempt from color-zone enforcement, which means you may repark in a 30-minute parking space.

How much do parking citations cost?
Parking citations cost a minimum $27. That means that one ticket a month will cost more than an annual parking permit.

I work downtown. How can I get a parking permit?
Just visit or call Revenue Collections on the first floor of Palo Alto Civic Center. Check with Revenue Collections 650-329-2317 for current permit pricing. Less expensive permits are available at the Sheraton Hotel (Lot X).

For More Information, Call:

City of Palo Alto: 650-329-2100
Bicycle: 650-329-2520
Parking Enforcement: 650-329-2687
Parking Permits: 650-329-2317
Police Department (Non-Emergency) 650-329-2413
Parking Citations 650-329-2252

Palo Alto Chamber of Commerce 650-324-3121

Palo Alto Downtown Business and Professional Association 650-462-1795

Bay Area Transit Information ...511

Palo Alto Shuttle 650-329-2520

Stanford Marguerite 650-723-9362

This brochure is a collaborative project of the City of Palo Alto and Palo Alto Chamber of Commerce.

- Permit Parking for Employers and Employees
  - Downtown Business District
    - Employees of businesses in the downtown parking assessment district may purchase quarterly or annual permits for long-term parking in any of the nine off-street parking lots and garages. Parking permits are issued for these locations and are $466.00/year, $146.50/quarter or $17.50/day:
    - Transferable Permits are also available for the following garages: Webster Cowper (WC), Bryant Lytton (SL), and Civic Center (CC). Transferable permits are sold to one individual and can be used on multiple vehicles. Transferable permits are sold at a two-quarter maximum. Visit Revenue Collections on the first floor of the Palo Alto Civic Center or call (650) 329-2252 for more information.
  - California Business District :
    - Employees of businesses in the California Business District may purchase quarterly or annual permits for long-term parking in any of the seven off street parking lots and garages. Parking permits are issued for

these locations and are $149.00/year, $49.00/quarter or $8.00/day. Transferable permits are also available.

- All Day Visitor Parking
  - Visitors may purchase a one-day permit. Permits are valid in all off-street parking lots and garages. All-day permits are not valid for on-street parking spaces.
  - All day permits may be purchased at Palo Alto Civic Center, 250 Hamilton Avenue on the first floor at Revenue Collections, or the first level of the Bryant Street and Cowper/Webster garages.
  - The cost is $17.50/day for downtown area and $7.00/day for California Avenue business district. Day permits for the California Business District may only be purchased at the Civic Center, Revenue Collections at this time.
  - Construction worker vehicles require a special on-street parking permit that can be purchased at the City of Palo Alto Development Center, 285 Hamilton Avenue and the cost for this permit is $76.00/space per week.
- Downtown Cap Study
  - In 1986, the City of Palo Alto conducted a Downtown Study, which examined parking, traffic and land use conditions in the Downtown area. The original study area included the Downtown Commercial area and surrounding residential neighborhoods in the periphery study area.
  - As a result of the Study, the Downtown zoning regulations were made generally more restrictive. A Downtown development cap policy was also adopted.
    - This policy restricted future non-residential development (office, retail, etc.) to a total of 350,000 square feet beyond what was in existence or approved in the Downtown ("CD Zone") area as of May 1986.
    - CD development regulations were to be re-evaluated when new development reached 235,000 square feet.
    - There were a number of other specific policies related to parking, traffic and growth in the CD area as well.
    - The Development Cap Study will evaluate the potential development and its impacts on downtown and nearby residential areas in two phases: a "data and impacts" phase (Phase 1) and a "policy" phase (Phase 2). Phase 1 will include a detailed review of existing traffic and parking conditions in and around the Downtown area, as well as projection of future conditions based on existing zoning requirements.

Transportation Demand Management:

The City of Palo Alto is embarking on two trial Transportation Demand Management Systems.

Caltrain Go Pass Program: From now until the end of 2014, any regularly-benefited City employee working at any Downtown location (Civic Center, Downtown Library or the Development Center) may receive a free Caltrain Go Pass for turning in their parking permit.

The Go Pass is available anywhere on Caltrain 24 hours a day, 7 days per week. To sign up, email gopass@cityofpaloalto.org.

TwoGo Rideshare: From now until the end of 2014, if you work for the City of Palo Alto or anywhere in Downtown Palo Alto, you can try SAP's powerful rideshare software – which helps you find carpooling opportunities in your community - for free!

If you are a City of Palo Alto employee, register for TwoGo by following these simple instructions:

1. Go to www.twogo.com and sign up

2. Enter your name, City of Palo Alto email, and phone number using the following format: +1 (650) 999-9999

3. Enter home address or preferred pick up point

4. Validate your email address

Email rideshare@cityofpaloalto.org with any additional questions!

If you are not a City employee but work in Downtown Palo Alto and would like to participate in the program, email rideshare@cityofpaloalto.org and we will get you signed up!"

Each employee/participant assumes all risks associated with the Twogo Program ("Program") and the City makes no representation or warranties regarding the Program and expressly disclaims any and all liability, losses, damages, claims, demands, causes of action, costs, obligations, or injuries arising from or connected with any employee's participation in the Program.

Zoning Code Requirements:

On September 11, 2007, the Palo Alto City Council approved the final revisions to the City's comprehensive update of the Zoning Ordinance, Title 18 of the Municipal Code. The ordinance includes a new format for the code, with a more extensive use of tables and updated definitions. Also included are context-based design criteria (form-based coding) for multi-family, commercial, mixed use, and pedestrian-transit oriented development. A PDF version of the Zoning Ordinance is also provided for easier viewing, downloading, and printing. Links to background issues papers and a history of the Palo Alto Zoning Ordinance are provided below.

http://www.amlegal.com/nxt/gateway.dll/California/paloalto_ca/paloaltomunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:paloalto_ca

There are a number of interesting "discussion documents" located at:

http://www.cityofpaloalto.org/gov/topics/projects/landuse/zoning.asp

These documents inform some of the major elements that were debated during zoning code update process. For further information on the development of the ordinance and continuing amendments, please contact the Department of Planning and Community Environment at 650-329-2441.

Santa Monica, California

Introduction:

Santa Monica is a beachfront city in western Los Angeles County, California, United States. The city is named after the Christian saint, Monica. Situated on Santa Monica Bay, it is bordered on three sides by the city of Los Angeles. The Census Bureau 2010 population for Santa Monica is 89,736.

Partly because of its agreeable climate, Santa Monica had become a famed resort town by the early 20th century. The city has experienced a boom since the late 1980s through the revitalization of its downtown core and significant job growth and increased tourism.

On- and Off-street Parking:

The City uses current technology and real-time information to keep cars moving on major boulevards and limit the impact of regional traffic on local streets. This includes a comprehensive street wayfinding system, including signs directing motorists to off-street parking and displaying real time parking availability at many public parking facilities including parking meters. Parking rates reflect the value of parking and are set to ensure that spaces are available when needed.

Real-time parking availability can be found by clicking the link below:
http://www.parkme.com/widget/?lat=34.01680622427998&lng=-118.49805856483461&tracker=a6870aea-21dc-11e2-ba1b-12313d150ae9&zoom=17

Pricing Strategies:

All City Parking Rates and Fees can be found at the link below:

http://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/Motorists-Parking/Parking-Rates.pdf

Residential Permit Parking

Preferential Parking Permits limit on-street parking to make it easier for residents and their guests to find a parking space near their home. Proof of residency at an eligible address must be provided in order to purchase a Resident or Visitor permit. Effective October 1, 2013 the City has adopted new Preferential Parking Permit rates for all Resident and Visitor permits.

The Customer Web Portal can be used by existing residential permit customers to renew permits, access their permit accounts, or look up parking citation information. Residents with active permit accounts may also print One-Day Temporary Guest Parking Permits online for household guests.

Beach Parking

City of Santa Monica beach lots are open for public parking from sunrise to sunset only, with the exception of the Pier lot which is open until 2 AM. The daily parking fee ranges from $6 to $15 per day depending on the season and location of the lot. Meters are available for short term parking. Frequent beachgoers may purchase beach parking permits on a monthly, semi-annual, or annual basis. Residents living near the beach may be eligible for Overnight Resident Beach Parking Permits.

Downtown Parking Structures

Parking Structures 1 through 9 and the Civic Center structure and lot are open 24 hours per day, 7 days per week. The Main Library garage is open from 8 AM to 11 PM, seven days per week. The hourly rates can be found here.

All monthly passes for the downtown structures are sold out. To renew an existing pass, please call Central Parking System at (310) 576-4743 or visit their office at 1444 4th Street, downstairs from Parking Structure 5.

Electric Vehicle Charging and Alt Fuel Vehicles

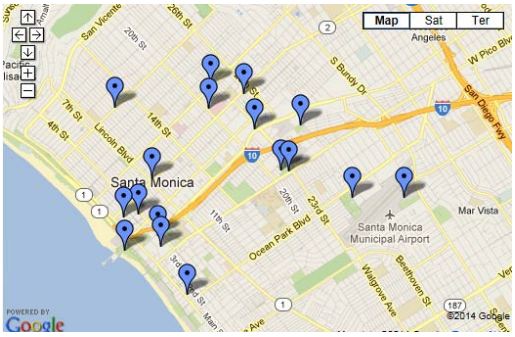
Priority Parking Rules:

WHITE and GREEN clean air decals are currently valid through January 1, 2019. White, green and ZEV decals allow you to park in any on-street, metered parking space in Santa Monica without charge for the maximum amount of time allowed by that meter. In other words, if you're at a 2-hour meter, you can park there free for 2 hours—but beyond that, you're subject to ticketing for overstaying your welcome. Clean Air Vehicle decals are issued by the state.

- Conventionally Fueled Vehicle Information:
  - Choose Partial Zero Emission Vehicles (PZEV) or Super Ultra Low Emission Vehicles (SULEV).
- Drive Clean Buying Guide and Zero Emission Vehicle (ZEV) Buying Information
  - http://driveclean.ca.gov/
- Cleanest & Meanest Vehicles
  - http://www.greenercars.org/highlights.htm
  - http://www.epa.gov/greenvehicle/
- Alternative Fueled Vehicles
  - http://www.afdc.energy.gov/
  - http://www.cngvc.org/

- Santa Monica EV Charging Locations

Level 2 Chargers in Santa Monica open to the public



On-Street Meters

Santa Monica parking meters accept payment by both credit card and coins. The City uses parking meter sensors to help ensure that users do not exceed the posted maximum time limit, thereby allowing us to better manage the limited supply of on-street parking that is always in high demand.

Parking meter time limits and enforcement hours are being changed for most meters in the Downtown district in 2014. More information can be found here.8.3 Square Miles

Parking Program Statistics

- 6,418 Parking Meters
- 46 Off-Street locations; 14,200 Off-Street parking spaces
- Administrated 80,000 Parking Permits annually
- Processed Over 300,000 Parking Citations annually
- Parked over 21 Million Cars annually

Reasons for Parking Program Transformation

- Managing Parking Resources
  - Real Estate does not grow but parking demand grows overnight. Increasing turnovers is the only immediate solution
- Traffic Management
  - Use pricing and time limit strategies to allocate cars to park in less congested and low turnover areas
- Operational Efficiency
  - Serve more while decreasing labor costs. Use automation and technology solutions to replace basic labor duties
- Sustainability
  - Shared-use Sustainable Parking Facilities; Minimize trips searching for parking spaces
- Proactive Compliance with On-going Development Projects
  - As more development projects come to the city, parking demand will grow rapidly. Be ready and be prepared for the parking needs
- Revenue Enhancement
  - Bi-product. However, projects generating revenue is easier to justify in cost and obtaining resources.

Technology and Innovation:

Projects Implemented in the Past 5 Years

- Online Permit Renewal
- Parking Permit Database Uploaded to Enforcement Devices
- Real-Time Car Count System with Monument Signs, Web-page, and Phone App
- Credit Card Acceptance at Entire Parking Program
- Smart Meters with Sensors at All 6,418 On-Street Parking Spaces with Time Limit, Reset, and Anti-Refeed Function
- 65 Multi-Spaces Meters at All Off-Street Parking Lots
- Bicycle Valet Program
- Automation in All Parking Structures with Centralized Control Panel
- Online Pre-Sale System for Events
- Electronic Depository
- Transit Pass and Monthly Parking Keycard Integration
- Bicycle Centers
- Built a $41 million LEED Certified Parking Structure

Recently Implemented Policies and Procedures

- Parking and Recreation Shared-Use Policy
- Large Scale Event Parking and Traffic Management Procedures
- Citywide On-Street and Off-Street Parking Rates Adjustments
- Citywide Parking Meters Time Limit Study and Adjustments
- All Day and Employee Parking Reallocation
- 3 Hour Time Limit Parking Spaces in Parking Structures
- Remove Free Disabled Parking in Off-Street Parking Facilities
- Seasonal and Event Parking Pricing

Results and Benefits

- Data Mining
  - Traffic Engineering and Coordination
  - Policy Implementation
  - Pricing Justification , Seasonal Pricing, and Event Parking Implementations
  - Providing Information and Communication with Stakeholders
- Efficiency
  - Customer Self-served , Decrease Foot Traffic at Parking Desk
  - Enhanced Space Finding Ability
- Revenue Control
  - All Cash Revenue is Traceable and Reconcilable
  - Less Cash Changes Hand with Electronic Transactions
- Decreased Labor Cost
  - Less Collection and Deposit Preparation Labor
  - Automation Decreased Cashier Labor Cost
- Enhance Sustainability
  - Energy and Lighting Efficient Parking Structure
  - Bicycle Parking Experience
  - Allocate Low Turnover Parking Group to Low Occupied Location

  - Incentivize Public Transit Use
  - Utilize Unused Parking Spaces During Low Season
  - Higher Turnovers, Increased Availability, Less Car Trips, Less Traffic, Less Idling, Less Carbon Monoxide
  - Recycle Rain Water Run-offs from Parking Facilities
- Parking Meters and Wireless Sensor Investment
  - Enhance overall parking experience
  - Reset parking meter after each vehicle departure
  - Develop a system that integrates with off-street parking
  - Enhance parking rate and policies programming capability
  - Collect accurate data; political decision supported by data
  - A customer focus tool
  - Improve public acceptance
- 90 Day Meter/Sensor Trial Results
  - 150 meters with in-ground sensors for 90 days trial program
  - Tested all capable functions
    - Reset
    - Time Limit (Anti Meter Re-feeding)
    - Data export
  - Justify R.O.I and Identify Resource –How to pay for it?
    - Reset + Rate Adjustment = Revenue Enhancement = Installation Pay Back + Operating Cost
  - Stakeholder support and City Council approval
  - Install 6,000 meters with in-ground sensors in two phases
    - Phrase I – meter heads – 6 weeks
    - Phrase II – in-ground sensors – 16 weeks
    - Originally was a two years project
    - Fine tuning – never ends
  - Lessons Learned
    - Request an assigned project manager
    - Assign field staff to monitor progress of the project
    - Put together an installation schedule and target completion date
    - Continue identifying tuning issues
    - Identify high traffic and problematic zones
    - Communicate with community and stakeholders
    - Prepare consistent responses to general public feedback
    - Develop a preventive maintenance plan
- Principles Established
  - Using Parking to Manage Traffic
  - Develop a Intelligent Transportation System
  - Data Mining
  - Guidance System
  - Dynamic Parking Pricing; by time, event, and zone
  - Parking Policy Adoption
  - New Time Limit Studies
  - New Enforcement Hours Implementation
  - All drivers responsible for their own parking fee
  - Land Use and Circulation Element (LUCE)
  - Create higher turnover in existing parking instead of continuing to build more
  - Decrease vehicle trips with Transportation Demand Management Effort
  - Manage Parking by efficient pricing

Cities We Can Learn From

Portland, Oregon

Introduction:

Portland is the largest city in the U.S. state of Oregon, near the confluence of the Willamette and Columbia rivers. According to the 2010 Census, it had a population of 583,776, estimated to have reached 609,456 in 2013, making it the 29th most populous city in the United States and the third most populous city in the Pacific Northwest region (after Seattle, Washington; and Vancouver, British Columbia, Canada). Approximately 2,314,554 people live in the Portland metropolitan area (MSA), the 19th most populous MSA in the United States.

Portland was incorporated in 1851 and is the county seat of Multnomah County.[10] The city has a commission-based government headed by a mayor and four other commissioners as well as Metro, a distinctive regional government. The city is noted for its superior land-use planning and investment in light rail. Because of its public transportation networks and efficient land-use planning, Portland has been recognized as one of the most environmentally conscious cities in the world.

The City of Portland Bureau of Transportation is a community partner in shaping a livable city. The Bureau plans, builds, manages and maintains an effective and safe transportation system that provides people and businesses access and mobility. The Bureau's motto is: "We keep Portland moving".

The Bureau offers a wide range of programs including the following:

- SmartTrips
- Ten Toe Express walking campaign
- Portland By Cycle
- Activities and events calendar
- Women on Bikes
- SmartTrips newsletters
- Portland Transportation Resource Guide
- Information about the variety of ways to get around Portland.
- Road Etiquette
- Helpful tips, whether you go by car or bike - plus explanations of Portland's roadway markings
- Family Biking Guide
    - SE Portland Bike/Walk Map
    - NE Portland Bike/Walk Map
    - North Portland Bike/Walk Map
    - NW Portland Bike/Walk Map
    - SW Portland Bike/Walk map
- Car Sharing
- TriMet (bus and MAX light rail)
- Portland Streetcar
- Portland Aerial Tram

The Portland Bureau of Transportation's annual budget is summarized in the table below:

PBOT Funding 2013-14: At a Glance
September 11, 2013

Funding Source	City General Fund	Fees	City Agencies	Grants	Parking	Gas Tax	Bonds
FY13-14 Budgeted Amount	$8.7m	$20.8m	$30.1m	$25.9m	$45.1m	$57.1m	$9.3m
Description	• Property taxes, business licenses, and utility license and franchise fees • PBOT receives less than two percent of the City General Fund	• Permits issued to builders, developers and private citizens using public space • Transportation System Development Charges	• Transportation and parking services provided to other city bureaus ○ PBOT Maintenance contracts with Bureau of Environmental Services, Bureau of Parks & Recreation, and Water Bureau ○ PBOT Parking contracts with Police Bureau	• Federal, state and local grants • Portland Development Commission	• Parking meters • Parking permits • Parking citations • SmartPark garages • SmartPark garage commercial space leases	• Gasoline, diesel and other fuel taxes, motor carrier weight-mile charges, and driver and motor vehicle registration and titling fees • Three sources: ○ Oregon's gas tax based on city population ○ Multnomah County's share of Oregon's gas tax based on vehicle registrations ○ Multnomah County's local gas tax	• City of Portland bond sales are one-time revenue sources that are paid back with interest over time
Restrictions for Use	• Streetlights, per City Council decision	• Full cost recovery for services charged a fee • Transportation System Development Charges fund projects approved by City Council	• Full cost recovery for services authorized in intergovernmental agreements	• Specific programs or projects authorized by grant agreements	• On-street parking revenues are unrestricted and spent at the discretion of PBOT as approved by City Council • Off-street parking revenues pay SmartPark costs first; then additional revenues are spent bureau-wide	• Cannot be spent on mass transit and enforcement • One percent must be spent on alternative transportation modes	• For 2013-14, a $9.3 million bond will pay: ○ $2.3m for Streetcar Close the Loop ○ $4.5m for LED Light Replacement ○ $1.5m for Northwest Parking ○ $1m for Parking Pay Stations

A more detailed overview of the Portland Bureau of Transportation FY 13-14 Adopted Budget can be found at: http://www.portlandoregon.gov/transportation/article/481578.

A few highlights include:

- A major program component is made up of Basic Operations and Maintenance. This function equates to $77.8M or 39.7% of the budget and includes the following:
  - Street Preservation maintains arterial and local streets, investigates pavement problems (repaving, pothole repair, fog and crack seal) and responds to hazards.
  - Traffic Safety and Control provides electrical maintenance for signals/streetlights/beacons, traffic control signs, parking signs, street name signs, traffic design engineering, safety evaluations, traffic control plans, street lighting services, and traffic signal operations & timing.
  - Street Cleaning provides residential/arterial street sweeping, leaf removal, transit mall & light rail area cleaning, street area landscaping, green space maintenance and emergency response for de-icing streets.
  - Bridges and Other Structures inspects PBOT's 157 bridges, 555 retaining walls and 188 public stairways and applies findings to maintenance prioritization.
  - Sidewalk Maintenance is responsible for sidewalk corners, ADA ramps, sidewalk posting & inspection, and limited sidewalk and curb repairs.
  - Recycling Operations processes asphalt, old concrete, street debris and leaves to produce usable products such as aggregate, rock, gravel, compost, sand and asphalt patch material.
  - Environmental System Maintenance inspects and cleans the sewer system; paid for by BES.
- The Capital Improvement Program budget equals $58.4M or 29.8% of the annual budget.
  - The CIP program is primarily funded by $34.4M in grants and bonds for specific projects, and PBOT contributes a small $10M towards match on the grant-funded projects.

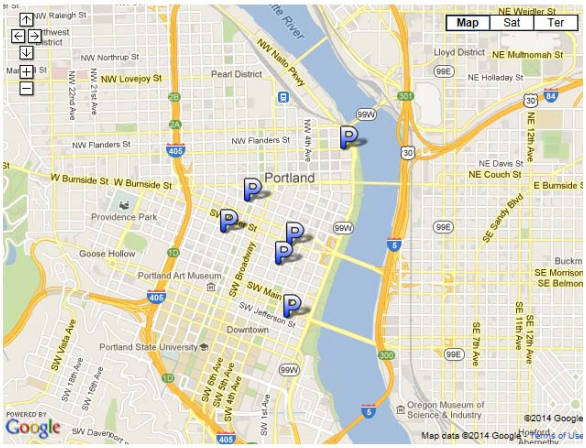
  - The larger projects in FY 13-14 include: Portland-Milwaukie Light Rail, Sellwood Bridge, Ramona/Holgate Street Improvements, Division Streetscape, 136th Avenue Sidewalk Improvements, Williams Street Improvements, and the LED Lighting project.
  - The CIP program also includes $7.6M in GTR committed to existing projects not completed in prior years, as well as $4M in projects for other city agencies. Nearly $14M of the CIP is dedicated to reconstruction projects.
- Annual parking revenues account for $26.1M or 13.3% of the budget.
  - PBOT provides both On-Street Parking and Off-Street Parking Garages. The on-street parking is monitored through enforcement officers. PBOT contracts with Central Parking for operations of the parking garages.
- Active Transportation account for $4.5M or 2.3%.
  - This program coordinates pedestrian, bicycle and transit related activities with constant engagement with the community. They build and promote a network with access for all Portlanders, regardless of age, ability, income level, race or ethnicity. Specific programs include Sunday Parkways, Safe Routes to School and Smart Trips.
- Streetcar & Tram Operations account for $10.3M or 5.3%.
  - The Streetcar is funded through a combination of Fees, Tri-Met, Sponsorships, Fare revenue and GTR. The GTR component is $4.8M. The Tram is 100% cost-recovery through fare revenue and is operated in partnership with OHSU.

SmartPark Program

<u>SmartPark Garages</u>

To make parking faster and easier at SmartPark garages, in 2012 major upgrades were made at five of the six convenient downtown Portland garages.

Map of SmartPark Garages



<u>Parking Pay Stations</u>

New paystations for daily parkers were installed along with automated gates at exit lanes. The garage modernization effort was done to ease peak time traffic congestion and improve customers' parking experience at SmartPark.

Cashiers are no longer available at garage exit lanes, but please know that help is always available. All paystations and exit lanes have push-button intercoms should you need assistance. In addition, each garage has a customer service representative on duty.

Except for O'Bryant Square, all SmartPark garages now have easy-to-operate automated pay-on-foot paystations.

The SmartPark garage automation project utilizes: Amano McGann Pay-On-Foot Central Paystations (accepting cash, credit/debit cards, validation vouchers, and coupons) and Credit Card Only Central Paystations (accepting credit/debit cards, validation vouchers, and coupons) installed on the ground level near all elevators.

New exit lane credit card only paystations are located at each garage exit lane.

Intercom and camera systems are installed at each paystation. For customer service, simply press the intercom button on the paystation. When the button is pressed, a live person will be available for assistance.

The access card readers for monthly parking customers remain unchanged.

Funding - The garage automation project was funded by parking garage revenue.

Electric Vehicle Charging

SmartPark offers electric vehicle (EV) charging stations at the following garages:

- 4th and Yamhill (three charging stations on Level 8)
- 3rd and Alder (two charging stations on Blue Level 3)
- 10th and Yamhill (four charging stations on Level 2)

The charging fees are currently $1 for Blink Members and $2 for Blink Guests. Please note there are no membership fees. See www.BlinkNetwork.com for details.

Metered Parking

The City of Portland has four parking meter districts: Downtown, Lloyd, Marquam Hill, and Central Eastside. These districts contain approximately 9,000 metered spaces with various parking rates and hours of operation. All metered parking spaces have various time limits that are displayed on signs near the spaces. Except in city parks, all districts observe the same holidays when parking is free.

Presently, Portland is using two types of meters - the Single-Space and the SmartMeter (paystation) to monitor approximately 9,700 spaces. Single-space meters accept nickels, dimes, and quarters. SmartMeters accept nickels, dimes, quarters, the small dollar coin, and credit/debit cards as payment.

If a SmartMeter is broken you must still provide proof of payment, so purchase a receipt from the nearest machine. If a single-space meter is broken, you may park your vehicle for the time limit of that meter; after that you must move your vehicle from the block face.

Bike Parking Corrals

The Portland Bureau of Transportation today announced that New Seasons Market at 4034 SE Hawthorne Boulevard is the site of the 100th bicycle parking corral in the city. The installation is a milestone in a program that has helped Portland businesses increase on-street customer parking ten-fold in the last nine years.

Bicycle corrals provide efficient use of the street for bicycle parking in areas with high demand. Corrals typically can park 12 to 24 bicycles in the same space as one to two cars. The bike corral at the Hawthorne New Seasons is the Bureau's 100th installation, far surpassing the number of on-street bike parking facilities in any other US city. View a list of all 100 businesses and bike parking corral locations and a map of all 100 installations.

Most of Portland's bicycle parking is provided in bike racks on the sidewalk. However, in a growing number of commercial areas the high demand for bicycle parking is too much for the sidewalk. In other cases, local businesses simply prefer bicycles in the parking strip rather than autos in order to attract a customer base that is turning more to the bicycles for transportation. In all cases, corrals are installed at the express request or cooperation of the adjacent businesses.

Altogether, Portland businesses and the city have replaced 163 auto parking spaces with 1,644 bicycle parking spaces. The Transportation Bureau continues to respond to business requests as bike parking demand increases, and currently has 98 additional applications under review.

Transportation Demand Management:

The City of Portland has a wide range of TDM programs. One item of interest is the City's "Employer Transportation Tool Kit". This document discusses why should businesses invest in sustainable transportation for its employees?

It includes "Easy & Essential Strategies" and also focuses on education as education lies at the core of changing commute behavior and new employees are likely to be more receptive.

The City's SmartTrips Business program will also conduct a free marketing program at individual work sites.

The employee education program includes:

- Providing transportation options information with new to all employees annually
- Conducting commute challenges to encourage employees to try sustainable incentives
- Promoting car sharing because members drive less, are less likely to own vehicles and have more choices for getting around during the work day. Plus, Zipcar provides your employees a discounted membership price and driving rates at no cost to you.
- Providing interactive web sites.
- Promote the elimination of free parking for employees.

Promoting transportation options is a low-cost benefit for your employees and a tax advantage for your company. Even small transportation benefits can increase employee recruitment and retention, while providing better access for customers.

The Employer Transportation Tool Kit can be downloaded at the following location:

http://www.portlandoregon.gov/transportation/article/400752

SmartTrips Business

SmartTrips Business is a Portland Bureau of Transportation outreach program that promotes transportation options for employers, commuters, and customers. SmartTrips Business encourages affordable, sustainable transportation. SmartTrips Business partners with Portland employers citywide to promote commuting choices and to encourage neighbors to walk and bicycle to local businesses. The program offers businesses a suite of transportation resources, including a free installed bike rack, employee commute options kits, neighborhood biking and walking maps for customers, and customized workshops for employees.

The SmartTrips Business Annual Report can be downloaded at: http://www.portlandoregon.gov/transportation/article/382810.

Transportation System Performance Monitoring

The monitoring of system performance has long been a part of operational management of the transportation system. A more recent trend is to apply performance monitoring to the evaluation of transportation policy and planning objectives. The benefits of performance monitoring in transportation planning include:

- Measurement of and feedback on existing policies and plans
- Informed decision making
- Increased accountability through periodic reporting

The Transportation System Plan (TSP) incorporates a set of performance indicators and measures to monitor the results of the plan over its 20-year span. These serve as the dynamic link between TSP policies and plan implementation by providing a periodic feedback and update process to ensure the TSP satisfies the City's transportation and land use goals.

Performance monitoring satisfies mandated benchmarks specified by the State Transportation Planning Rule (TPR). It also provides criteria for advancing major capital improvements from the TSP into the capital improvement program (CIP). For more detail, including specific modal target and other performance metrics see the Transportation System Plan article located at: http://www.portlandoregon.gov/transportation/article/370492.

San Francisco, California

Introduction:

San Francisco, officially the City and County of San Francisco, is the cultural center and a leading financial hub of the San Francisco Bay Area and Northern California.

The only consolidated city-county in California, San Francisco encompasses a land area of about 46.9 square miles on the northern end of the San Francisco Peninsula, giving it a density of about 17,867 people per square mile. It is the most densely settled large city (population greater than 200,000) in the state of California and the second-most densely populated major city in the United States after New York City. San Francisco is the fourth-most populous city in California, after Los Angeles, San Diego and San Jose, and the 14th-most populous city in the United States—with a Census-estimated 2013 population of 837,442. The city is also the financial and cultural hub of the larger San Jose-San Francisco-Oakland combined statistical area, with a population of 8.5 million.

Transportation Strategic Plan

The San Francisco Municipal Transportation Agency (SFMTA) developed a program Strategic Plan in 2013. The plans tag line is:

"San Francisco: great city, excellent transportation choices."

The following are some of the high level elements of the plan:

Mission Statement

- The SFMTA plans, designs, builds, operates, regulates, and maintains one of the most diverse transportation networks in the world. In addition to the four modes of transportation (transit, walking, bicycling and driving, which includes private vehicles, taxis, carsharing, on-and off-street parking and commercial vehicles), the Agency directly oversees five transit modes (bus, trolley bus, light rail, historic streetcar, and cable car), in addition to overseeing paratransit service, which serves individuals unable to use fixed-route transit service.

Core Values For the Transportation Network:

- Transit First: Transit, walking, bicycling, taxi, carsharing, and ridesharing have the highest priority
- Complete and Green Streets: Streets are designed and managed to be attractive, inviting public spaces for people
- Green, Clean, and Quiet Mobility: Use the greenest, most efficient, and quietest technologies available
- Social Equity and Access: Prioritize the most affordable and accessible modes

Core Values for the Transportation Team:

- Leadership: Realizing and implementing the vision to the fullest
- Teamwork: Working together in partnership to provide excellent customer service
- Integrity: Working with the highest standards of honesty and ethics
- Accountability: Taking joint responsibility to set and meet or exceed the Agency's goals
- Effectiveness: Achieving results through collaboration and efficient use of resources

- Respect: Holding those with and for whom we work in high esteem and regard

Strategic Goals:

The Strategic Plan's four overarching goals will shape how the Agency prioritizes its attention, resources and staff over the next six fiscal years.

- Create a safer transportation experience for everyone.
- Make transit, walking, bicycling, taxi, ridesharing and carsharing the preferred means of travel.
- Improve the environment and quality of life in San Francisco.
- Create a workplace that delivers outstanding service.

FY2013-FY2018 SFMTA Strategic Plan

By 2035, San Francisco is projected to have an approximate 15 percent growth in population and a 25 percent growth in employment. This growth requires us to re-think our resources and tools to meet the city's quality of life objectives. SFMTA can leverage its multi-modality to facilitate big picture planning, design, construction, operations and overall funding management to implement complete streets projects that make non-auto modes more attractive to all residents, workers and visitors to San Francisco.

Under the FY2013-FY2018 SFMTA Strategic Plan, the SFMTA committed to a mode share goal of 50 percent auto and 50 percent non-auto (transit, bicycling, walking and taxi) for all trips by 2018. Meeting this mode shift goal will put the SFMTA and the city as a whole on track to meet the transportation needs of future residents, employees and visitors.

Modal & Programmatic Strategies

Taking a closer look at each of the transportation modes in San Francisco, the SFMTA is currently studying the needs, benefits and costs to enhance each mode network in the city. With a focus on improving safety, encouraging mode shift and improving the quality of life in San Francisco, these strategies layout how the SFMTA and the City and County of San Francisco can achieve the 2018 mode split goal.

Strategic Plan Metrics Reports

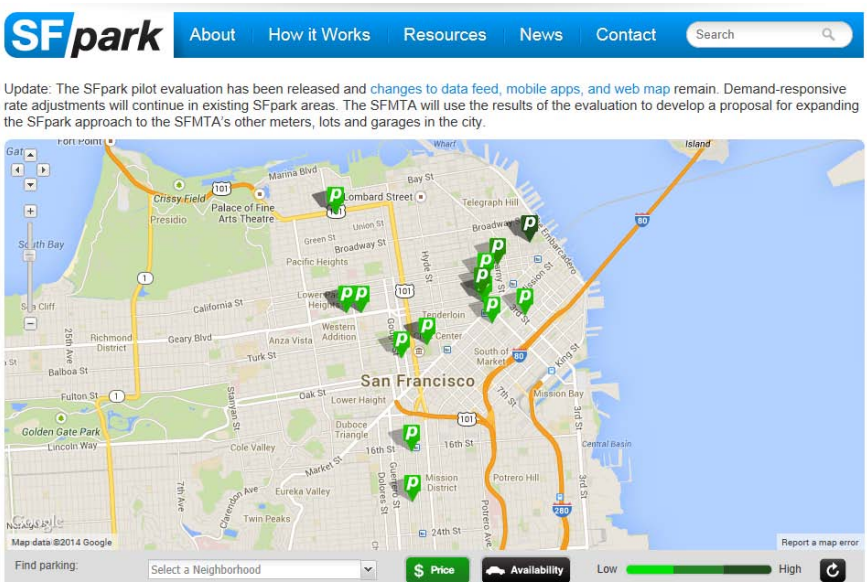
Strategic Plan Metrics Reports measure the SFMTA's progress toward meeting its goals, including Service Standards mandated by Proposition E. These metric reports are delivered monthly to the SFMTA Board's Policy and Governance Committee. The link below provides access to the September 2014 Metrics Report. All other reports are available on-line.

http://www.sfmta.com/sites/default/files/Strategic%20Plan%20Metrics%20Report%20-%20September%202014%20FINAL.pdf

SFpark

SFMTA established SFpark to use new technologies and policies to improve parking in San Francisco. Reducing traffic by helping drivers find parking benefits everyone. More parking availability makes streets less congested and safer. Meters that accept credit and debit cards reduce frustration and parking citations. Circle less, live more - see the Project Description for more information about SFpark, including real-time parking information and the SFpark smart phone app.

The SFpark pilot evaluation has been released and changes to data feed, mobile apps, and web map remain. Demand-responsive rate adjustments will continue in existing SFpark areas. The SFMTA will use the results of the evaluation to develop a proposal for expanding the SFpark approach to the SFMTA's other meters, lots and garages in the city.



How SFpark Works

SFpark works by using smart pricing so that drivers can quickly find open spaces. To help achieve the right level of parking availability, SFpark periodically adjusts meter and garage pricing up and down to match demand. Demand-responsive pricing encourages drivers to park in underused areas and garages, reducing demand in overused areas. Through SFpark, demand-responsive pricing works to readjust parking patterns in the city so that parking is easier to find.

What are the major elements of SFpark?

- Demand-responsive pricing to create parking availability
- Longer time limits at parking meters to make parking more convenient
- Meters that make it easy to pay by accepting credit cards and other forms of payment
- Garage facility upgrades to make garages more convenient

What are the benefits of SFpark?

- Convenient parking. Drivers can find and pay for parking more easily.
- Fewer parking tickets. Longer time limits and meters that make it easy to pay will help drivers avoid parking tickets.
- Improved economic vitality. Improving access to commercial areas will foster economic activity in San Francisco's downtown and neighborhood commercial districts.
- Faster and more reliable Muni service. Muni can be faster and more reliable when double-parking and congestion are reduced.

- Safer streets. Less circling means less traffic and fewer distracted drivers, leading to fewer car, bicycle and pedestrian collisions.
- Better air quality and reduced greenhouse gas emissions. Less circling means less traffic, driving and pollution.

How many meters and garages are covered by SFpark?

- 7,000 of San Francisco's 28,800 metered spaces.
- 12,250 spaces in 15 of the 20 parking garages that the SFMTA manages.

How is SFpark funded?

- Funding for SFpark project comes primarily from a $19.8 million grant from the U.S. Department of Transportation's Urban Partnership Program.

Is SFpark a way for the City to raise revenue?

- No. The primary goal of SFpark is to improve parking availability. Hourly parking rates have increased in high-demand areas and at high-demand times but rates are also decreasing in low-demand areas and times. While parking meter revenues may increase, parking ticket revenue will decrease due to longer time limits and new meters that make it easy to pay. By reducing circling and double-parking, SFpark will help the SFMTA reduce Muni costs by speeding up buses and streetcars.

Has the SFpark approach to parking management been tested elsewhere?

- While several cities have implemented some elements of SFpark, San Francisco is the first city to put in place a full package of smart parking management technology and policies in such an extensive area. SFpark will be carefully evaluated so its benefits can be extended throughout San Francisco as well as to other cities.

If the goal is to create the right level of parking availability, why relax time limits?

- At most SFpark meters, the time limit for regular parking is four hours; and some meters have no time limit at all. SFpark emphasizes the use of demand-responsive pricing to achieve parking availability goals rather than time limits to achieve a vague turnover goal, recognizing that turnover is simply a strategy to achieve availability. Easing time limit restrictions makes parking more convenient for drivers, but it does not mean that all people will park longer. Extended time limits simply allow individuals to park longer if they want to.

Will SFpark drive people and business away from the City?

- No. Surveys show that drivers in the Bay Area place a high value on parking convenience. Right now, some people don't shop in San Francisco because they feel parking is too hard to find. SFpark's goal is to make parking easier and more convenient. The price of parking will be the lowest price possible to achieve the availability target. Time limits are also longer and the new meters make it easier to pay, helping change perceptions about parking in San Francisco.

Won't the SFpark app encourage drivers to use their smartphones while driving?

- SFpark is intended to create an environment that leads to fewer distracted drivers, improving safety for all users of the road. Every time the SFpark app launches, customers see a warning message reminding them that using a smartphone while driving is dangerous and against the law. While the app is open, it shows an additional reminder if the phone is detected moving faster than 10 miles per hour.

  The smartphone app and web map are expected to be accessed before a trip begins or to be operated by a passenger if accessed while in motion. SFMTA strongly discourages illegal use of the SFpark app including accessing the app while driving.

How can I get parking information on my phone if I don't have an iPhone or Android?

- Parking information is available on SFpark.org as well as on the iPhone and Android apps. In addition to the apps provided by the SFMTA, outside developers are using the SFpark data feed to create other apps.
- For those who do not use smart phones, the region's 511 system offers on-street parking and garage availability and rate information. SFpark no longer provides garage information via text message because of low service usage

The pilot phase

SFpark has tested its new parking management system at 7,000 of San Francisco's 28,800 metered spaces and 12,250 spaces in 15 of 20 City-owned parking garages. Federal funding through the Department of Transportation's Urban Partnership Program pays for 80 percent of the SFpark project. After collecting data to measure the goals of the pilot, analysis and evaluation of the pilot is underway; look for the full evaluation report in spring 2014.

Resources

As a federally funded demonstration, SFpark publicly shares extensive information about the project. This information may be of interest to customers, the press, academics and city administrators considering how to manage parking. Project documents, maps, images and data are available for download here: http://sfpark.org/resources-overview/. Examples of available resources include:

- Maps
  - Featured Resources
    - On-street parking census data and map (April 2014)
    - Meter rate adjustment overview maps, August 2013
    - Meter rate adjustment overview maps, April 2013
- Images
  - Featured Resources
    - Android app screenshots with phone
    - Photos of new SF*park* parking garage wayfinding signs
    - iPhone app screenshots with iPhone

- Documents
  - Featured Resources
    - On-street parking census data and map (April 2014)
    - Estimating parking occupancy using meter payment data

- Videos
  - Featured Resources
    - ITS America Smart Parking Symposium video
    - SPUR MFAC Award video
    - SF*park* overview video
- Data
  - Featured Resources
    - On-street parking census data and map (April 2014)
    - Meter rate adjustment spreadsheet, August 2013
    - Garage rate adjustment spreadsheet, April 2013

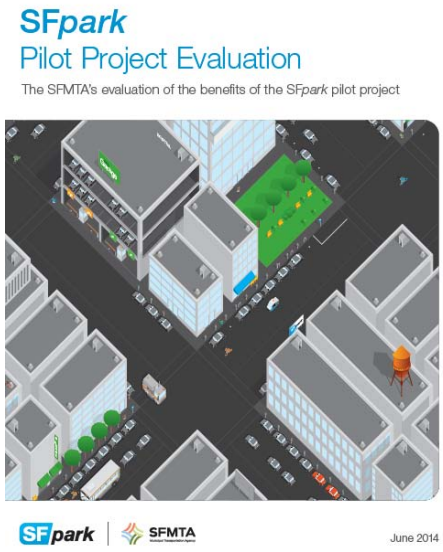
Pilot Program Evaluation

The SFpark pilot program evaluation report is a very well done and comprehensive document. The full report can be downloaded at the link below:

http://direct.sfpark.org/wp-content/uploads/eval/SFpark_Pilot_Project_Evaluation.pdf

The following is an outline of its contents.

- Executive summary
- Overview of SFpark.
- Effectiveness of Parking Pricing
- Effectiveness of Parking Management
- Parking Enforcement
- Congestion and Environment
- Transit Performance
- Customer Experience
- Economic Vitality
- Financial Analysis
- Technology



Transportation Demand Management:

Transportation Demand Management (TDM) is a layer of policies, programs, information, services, and tools that work with the transportation infrastructure and operations to support the use of sustainable modes for all trips. Together, TDM strategies result in reducing the need to rely on single occupant vehicle (SOV) trips and can help reduce households' need for car ownership. The goal of TDM is to help households, employees, and visitors make more of their trips on transit, by bike or on foot, or in shared vehicles like taxis and carshare cars. Not only do TDM strategies reduce congestion, they improve the utilization of existing services and can result in cost savings to companies and individuals.

San Francisco has one of the most dynamic economies and beautiful environments in the world. It is also the center of one of the most congested and most expensive regions in the nation and is experiencing a growing demand for transportation. Simply put, we cannot accommodate the increasing demand for travel within the city through driving—limited roadway space, as well as the impacts of driving on public health and the environment, makes the increased proportional use of the other modes more critical to ensure and enhance our quality of life.

The SFMTA's goal is that at least fifty percent of all trips should be made by these sustainable modes by 2018. TDM policies, projects, and programs support this goal by making it more convenient, cost-effective, and easier to take transit, walk, bicycle, taxi, car sharing or ride sharing for more trips.

TDM programs function in several key ways:

- Provide easy to understand information about all travel choices
- Use marketing and incentives to shift trips to more sustainable modes
- Influence land use to improve viability of sustainable modes
- Use market pricing to balance transportation demand

SFMTA TDM PROGRAM FRAMEWORK

The SFMTA's broad portfolio of services allows it to look at the big picture of transportation and seize those opportunities and partnerships with three strategic TDM focus areas:

- Land use and policy coordination
- Citywide parking demand management
- Customer oriented travel choice marketing, education and outreach

Land-use/TDM Policy Coordination:

- The SFMTA partners with land-use agencies to ensure mixed land-use planning that result in developments with small street block sizes, activated ground floors, facilities that promote sustainable modes of travel. The goals of this work are to:
- Minimizing distances between jobs, housing and services to minimize the need for driving trips
- Create the demand for, and viability of high quality transit, bicycle and walking opportunities to shift demand from driving
- These development designs also create new opportunities for private investment to support the city's transportation choices by:
- Investing development funds into transit, bicycle and walking infrastructure through cost savings from reduced parking
- Including transit passes, and bike sharing and carsharing memberships as part of housing costs
- Unbundling parking and requiring peak hour parking access fees for commercial uses when garage entries and exits have the most impact on the transportation network
- Citywide parking demand management: Managing parking well is one of the most powerful strategies to affect travel choices. The SFMTA leverages the existing and new development designs to manage congestion, auto trips and VMT generation by:
- Managing on-street and off-street parking pricing to ensure optimal usage and availability
- Removing policies that encourage driving to congested areas/ periods of the day
- Promoting incentives to reduce on-site auto parking
- Supporting shared trips through policies that support taxis, carsharing, scooter sharing, and bicycle sharing to scale on our streets, in garages, and in new developments
- Investing money generated from parking fees into the sustainable transportation system
- Multi-modal marketing, education, and outreach programs: Clear information, promotion and encouragement can shift trips for residents, workers, students, and visitors. The SFMTA is pursuing communication strategies including:

- User-friendly information about transit routes, payment, and availability
- Wayfinding signage designed for people on foot, on bike, and on transit
- Multi-media encouragement campaigns in partnership with businesses and other institutions
- Targeted education campaigns about transportation options

Transportation Demand Management Programs

Examples of TDM programs currently underway in San Francisco include:

- SFpark: collects and distributes real-time information about where on-street and off-street parking is available, so that car drivers can quickly find parking spaces. To help achieve the right level of parking availability, SFpark periodically adjusts meter and garage pricing to match the level of demand, which encourages drivers to park in underutilized areas and garages, reducing demand in overused areas.
- Travel Time Reduction Program: These delay-reducing treatments on the Muni Rapid Network make transit more reliable and appealing for customers.
- Wayfinding: Temporary installations for special events (like Fleet Week 2012 an America's Cup 2013) and permanent installations (Balboa Park station, Muni Metro hub stations) provide information about destinations and transit hubs for people on foot and on bike
- Fast Pass, Class Pass programs: Reduced price monthly and semester Muni passes make transit even more affordable.
- Bicycle Sharing: San Francisco is piloting a network of shared bicycles for short-term use.
- NextMuni: Provides real-time information at bus stops, on the web, and on smart phones.
- Emergency ride home program: Provides a guaranteed ride home in case of emergency for those who travel to work by bike, on foot, in a carpool, or in transit.
- San Francisco Rideshare: Provides carpool and vanpool trip matching service.
- Safe Routes to School: Promotes safe walking and biking to school.
- TDM for Tourism: Working with the travel and tourism industry to promote transit, walking, biking and other sustainable modes for recreational and business visitors. Visitor-focused maps, communications, and transit passes and cards.
- Commuter Shuttles Pilot: A pilot that would test sharing a limited number of Muni stops with commuter shuttles through a permit program.
- Commute By Bike: A pilot education, encouragement, and technical assistance program that works with employers on the bike network to increase bike commuting among employees.
- TDM Partners Program: A multi-agency collaboration to pilot new programs with private sector partners to reduce drive-alone trips. Pilots include parking cash-out and parking management and innovative ridesharing programs.
- TDM for special events: Strategies to promote sustainable travel for special event trips. These include collaborations with regional transit agencies on communications, provision of enhanced transit, temporary wayfinding, satellite parking, and inclusion of transit fare in tickets/passes.

Seattle, Washington

Introduction:

Seattle is a coastal seaport city and the seat of King County, in the U.S. state of Washington. With an estimated 652,405 residents as of 2013, Seattle is the largest city in the Pacific Northwest region of North America and the fastest-growing major city in the United States. The Seattle metropolitan area of around 3.6 million inhabitants is the 15th largest metropolitan area in the United States. The city is situated on a narrow isthmus between Puget Sound (an inlet of the Pacific Ocean) and Lake Washington, about 100 miles (160 km) south of the Canada–United States border. A major gateway for trade with Asia, Seattle is the 8th largest port in the United States and 9th largest in North America in terms of container handling.

Program Summary:

On- and Off-street Parking Management:

Parking is a key piece of the transportation puzzle. As a limited resource that's often in high demand, SDOT manages on-street parking to: Balance competing needs (transit, customers, residents, shared vehicles),

- Move people and goods efficiently,
- Support business district vitality, and
- Create livable neighborhoods.

SDOT has a variety of programs and projects in place to meet these goals Parking responsibilities are spread throughout the city, so we work closely with Seattle Police Department Parking Enforcement, Department of Planning and Development (off-street parking), the Municipal Court, Finance and Administrative Services, and others.

Specific parking programs/resources include:

- RPZ permit
- Temporary no parking zones
- Request a disabled parking space
- Request a loading zone
- Truck permits
- Carpool permits
- Report a pay station problem
- Paint your driveway curb
- Request a disabled parking placard
- Report an abandoned vehicle
- Contact Parking Enforcement\
- Find out if your car has been towed
- Pay a parking ticket
- Find out about the scofflaw booting program

Parking Rate Changes

SDOT adjusts rates, time limits and paid hours of operation in order to:

- Help customers reliably find parking within easy walking distance of their destinations, while ensuring spaces are well used
- Conserve fuel, reduce emissions, and lessen traffic congestion from drivers circling in search of parking
- Increase access to businesses by ensuring turnover of parked cars

Based on City policy, SDOT's goal is to have one to two available spaces on a block throughout the day, which translates to a target occupancy range of 70% – 85%. At that occupancy, parking is well utilized, and customers and visitors can reliably find an available space.

An interactive map provides current parking rates and time limits. The information in this map is updated as changes occur. A parking survey data collection effort is completed annually and is used to update parking pricing based on demand.

A video discussing updates to parking rates is provided on the SDOT website.

Can I Park Here? Brochure

The "Can I Park Here: brochure provides 22 ways to avoid getting a parking ticket and other handy parking info.

SDOT has a variety of programs and projects in place to meet these goals (learn more via links to the left). Parking responsibilities are spread throughout the city, so we work closely with Seattle Police Department Parking Enforcement, Department of Planning and Development (off-street parking), the Municipal Court, Finance and Administrative Services, and others.

Seattle's Innovative E-Park Program

When you visit downtown, e-Park signs help you find parking faster. The signs let you know how many spaces are available in twelve garages throughout the Downtown Retail Core, Pike Place Market, Pioneer Square and central Waterfront neighborhoods.

Look for dynamic signs at key downtown points to guide you to participating garages with available spaces. The signs tell how many spaces are currently available in each garage. Real-time parking information takes the guesswork out of parking and helps reduce congestion, leaving you more time to enjoy all that downtown has to offer.

A video describing the e-Park program can be seen at:

http://www.youtube.com/watch?v=4d5Ng-LSwEY&feature=player_embedded

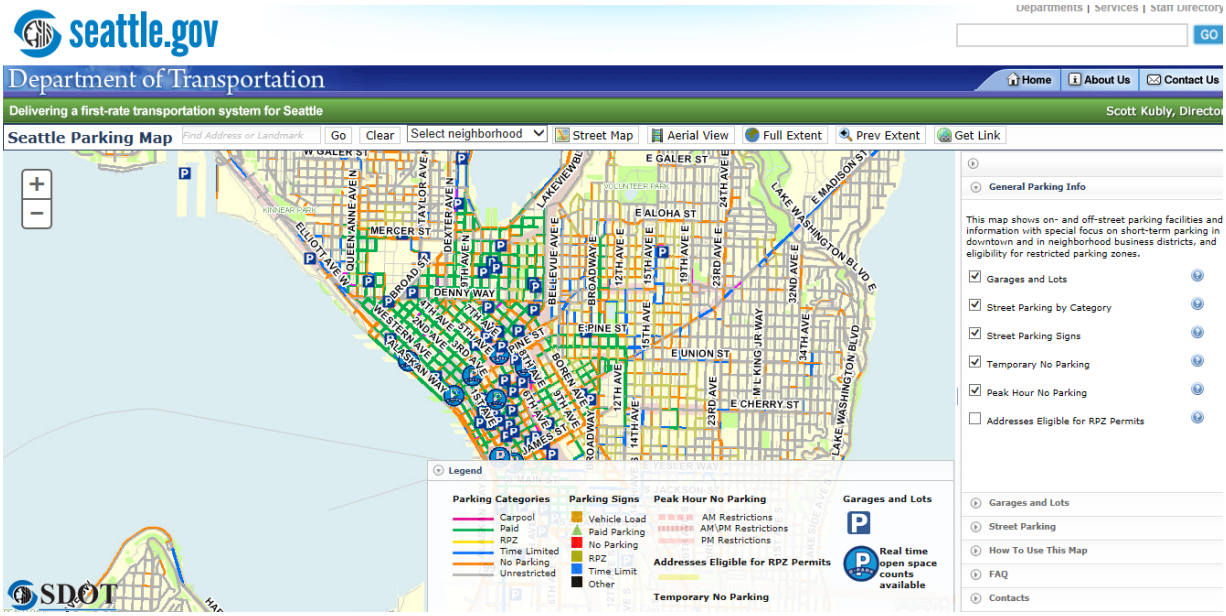
e-Park System Basics

- What is e-Park?
  - E-Park is a parking guidance system that helps visitors to downtown find parking faster.
- What is the purpose of e-Park?
  - As Downtown Seattle loses street parking to construction, we need to maintain convenient access to parking for customers and visitors. e-Park helps traffic flow and supports downtown commerce by helping customers and visitors find parking more quickly.
- How does e-Park work?
  - At key entrance points to downtown, dynamic signs displaying real-time parking information guide customers and visitors towards participating garages that have available spaces. Wayfinding signs confirm that drivers are on the right path.
  - Smart phones users can readily access e-Park data by bookmarking www.seattle.gov/eparkmobile, so that real-time space counts are always handy.
  - Parking customers can also plan ahead by going to www.seattle.gov/parkingmap to get more information about where to park downtown from an online, interactive citywide parking map. The Seattle Parking Map displays on-street parking information and garage and lot locations, rates, and hours of operation.
- How many garages are participating in the program?
  - Twelve garages throughout the Retail District Central Waterfront, Pioneer Square, and Pike Place Market destination areas are now participating in e-Park. Collectively, these garages have over 7,000 parking spaces.
- How were the participating garages chosen?
  - The City reached out to garages in the downtown core that could provide real-time information about space availability and had an interest in partnering. About half of the garages in the program are in Pioneer Square and the Central Waterfront; neighborhoods where on-street parking has been impacted by the SR-99 Tunnel Project and the Seawall Reconstruction Project.

- Are the prices comparable to other garages?
    - The e-Park signs and Seattle Parking Map are meant to assist drivers in finding available parking and planning their trip ahead of time online. Other than Pacific Place, the city does not own these facilities or set their rates and hours of operation.
    - Rate information for many garages in the Central Waterfront and Pioneer Square areas can be found at http://downtownseattleparking.com
- How do drivers use it?
    - There are two ways to use e-Park:
        - Drivers can plan ahead by going online to www.seattle.gov/eparkmobile or www.seattle.gov/parkingmap to plan their trip and find where to park.
        - Dynamic signs with an e-Park logo are located at major routes into Downtown. As drivers follow the signs and get closer to participating garages, they will see additional signs that list garage names and the number of spaces available. An e-Park sign with space availability will also be at the garage entrance. Dynamic signs and real-time information make finding parking downtown easy.
- Who is it intended for?
    - Short term parkers – meaning visitors to downtown using parking for less than four hours.
- Why is it focused on short-term parking?
    - The SR-99 Deep Bore Tunnel Project and Elliott Bay Seawall Replacement Project require use of the on-street spaces under the Viaduct for traffic routing and construction staging purposes. By the time the Alaskan Way Viaduct is removed in 2016, over 600 on-street spaces under the Viaduct will have also been removed. These are short-term spaces for customers and visitors. e-Park uses existing parking garages to help those coming downtown to shop, eat, see the dentist and make other short visits by guiding them to alternate short-term spaces available in off-street parking garages.
- What has the City invested in e-Park?
    - The downtown retail program, which started in September 2010, cost about $2.5 million and was primarily funded by City bonds. The 2013-2014 expansion underway now costs about $1.5 million. Partner garages are responsible for making technology upgrades as needed to integrate into the city electronic guidance parking system. Pioneer Square and Central Waterfront garages were added in partnership with the Washington State Department of Transportation (WSDOT).
- What other cities are doing this program?
    - Guidance system technology is commonly used throughout European cities. It is increasingly being adopted in U.S. cities, including Los Angeles, San Jose, San Francisco, California and Portland, Oregon. Seattle's e-Park program is unique because of our partnership with privately owned garages.
- Where does this project fit into citywide goals?
    - e-Park is a key program in meeting City goals to move people and goods and contribute to vibrant neighborhoods. By improving information available to parkers and helping them find parking faster, e-Park reduces congestion and pollution caused by motorists circling for a parking space.

Seattle On-Line Parking Map

This map shows on- and off-street parking facilities and information with special focus on short-term parking in downtown and in neighborhood business districts, and eligibility for restricted parking zones.



Curb Use Priorities in Seattle

Curb space is part of the public street system, and as such it is a public good that is available for all people to use. The Seattle Department of Transportation regulates the use of curb space to address competing needs, to assist in moving people and goods more efficiently, to support the vitality of business districts, and to create liveable neighborhoods. The Department prioritizes the uses for curb space as follows (click here for definitions of common parking terminology)

In residential areas the priorities for curb space use are:

- Transit use (bus stops and spaces for bus layover),
- Passenger and commercial vehicle loading zones,
- Parking for local residents and for shared vehicles, and vehicular capacity.

In business or commercial areas, including blocks with mixed-use buildings containing residential units, the priorities for curb space use are:

- Transit use (bus stops and spaces for bus layover),
- Passenger and commercial vehicle loading zones,
- Short-term customer parking (time limit signs and paid parking typically for 1- or 2-hours);
- Parking for shared vehicles, and vehicular capacity.

The Department strives to balance the diverse and competing needs for curb spaces uses, and considers the adjacent land uses both in terms of each specific block as well as the larger surrounding area. In general the City's priorities (as present in the Comprehensive Plan and other similar documents) do not support the use of on-street parking for long-term commuter parking.

SeaPark is SDOT's Performance-Based Parking Pricing Program

Since late 2010, SDOT has set on-street parking rates and hours of operation based on occupancy data to achieve a goal of one to two spaces available per block for visitor and shopper access. We believe we can improve the parking experience by aiding people in finding parking faster, which also means less circling traffic congestion and vehicle emissions.

SDOT conducts an annual paid parking study that is used for the data analysis in rate-setting. The City adopted Seattle Municipal Code 11.16.121 in late 2010 and conducted a Performance-Based Parking Pricing Study in 2011.

The 2011 Performance-Based Parking Pricing Study, conducted by Kimley-Horn and Associates can be found at the link below:

http://www.seattle.gov/transportation/parking/docs/SDOT_PbPP_FinRpt.pdf

Seattle's Transportation Options Program

SDOT's Transportation Options program provides a variety of services to help residents, employers, building managers, and developers access tools and resources for getting around Seattle. Our programs include:

- The Way to Go Program provides resources and information to residents and visitors on Seattle's transportation options.
- The NavSeattle Program is for residential building managers and developers. The program connects Seattle's growing multifamily residential sector to resources for promoting a building's transportation amenities.
    - SDOT's Pilot Program to Promote Transportation Options in Multifamily Residential Buildings
    - NavSeattleTo make sure Seattle residents have the information they need to get around, we're launching the NavSeattle pilot program

in 2014. The program will connect multifamily developers and building managers with transportation information, resources, and services to share with current and future residents. The goal of the NavSeattle pilot is to promote transportation options in areas of the city where they're most accessible so that as we grow as a city, we continue to address issues of air quality, congestion, and affordability.
    - In 2014 SDOT's NavSeattle pilot will work with a small group of buildings in Seattle's Urban Villages to develop the strategies listed below.
    - NavSeattle Pilot Strategies
        - Ensure Building Managers Know about Nearby Transportation Options
        - Provide Comprehensive Transportation Information to Tenants
        - Hold Events to Promote Transportation Options
        - Provide Transportation Memberships & Passes
        - Provide Discounts and Materials to Promote Nearby Businesses & Services
        - Install Digital Wayfinding/Trip Planning Amenities
        - Ensure Quality Bike Parking Access
        - Evaluate Building Vehicle Parking Management Strategies
- The Commute Trip Reduction Program (CTR) supports employers in promoting transportation options to reduce congestion and air pollution.
    - SDOT's Program for Employers to Promote Transportation Options for Employees
    - The City of Seattle's CTR program is a partnership that connects employers with the resources they need to provide innovative transportation programming for their employees. For over twenty years, this partnership has helped employers provide transportation benefits for commuters whose travel choices make significant contributions to reducing air pollution, traffic congestion and energy consumption. It has yielded great results with 64% of commuters from participating businesses now using transit, walking, carpooling, bicycling, or telecommuting. The city aims to grow this partnership with businesses and continue to reduce the number of commuters driving alone. To learn more about the benefits and services provided to employers participating in the CTR program click here
    - The Seattle Department of Transportation (SDOT) works with local and regional partners to assist CTR employers with reaching their goals. SDOT partners with Commute Seattle to provide CTR services to all employers located in Seattle's Center City.
- The Transportation Management Program (TMP) assists owners and managers of large buildings in developing and evaluating building-wide transportation programs.
    - SDOT's Program to Promote Transportation Options in Large Buildings
    - Transportation Management Programs (TMP) play an important role in helping Seattle achieve its transportation goals by reducing drive-alone trips. Similar to the Commute Trip Reduction Program, the City works with property owners and managers to help implement strategies to facilitate their tenants' use of travel options including transit, walking, carpooling, and bicycling. However, while CTR applies to large employers, TMPs apply to all of the tenants in a particular building.
    - The Department of Planning and Development (DPD) and SDOT share responsibility for working with the developers and property managers to create and implement effective TMPs. Successful programs can include a variety of different elements, such as:

- A centralized information center that displays information about different travel options
- Free parking for carpools and vanpools
- Pedestrian and bicycle wayfinding signs to trails and transit stops
- Transit pass subsidies to employees who work at the site
- Bike parking and on-site locker and shower facilities

Los Angeles, California

Introduction:

Los Angeles, meaning The Angels, officially the City of Los Angeles, often known by its initials L.A., is the most populous city in the U.S. state of California and the second-most populous in the United States, after New York City, with a population at the 2010 United States Census of 3,792,621. It has a land area of 469 square miles, and is located in Southern California.

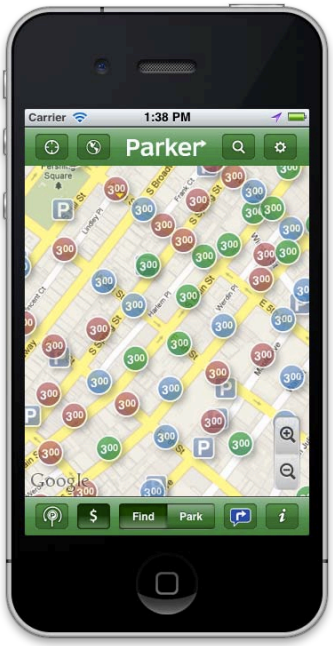
The city is the focal point of the larger Los Angeles–Long Beach–Anaheim metropolitan statistical area and Greater Los Angeles Area region, which contain 13 million and over 18 million people in combined statistical area respectively as of 2010, making it one of the most populous metropolitan areas in the world and the second-largest in the United States. Los Angeles is also the seat of Los Angeles County, the most populated and one of the most ethnically diverse counties in the United States, while the entire Los Angeles area itself has been recognized as the most diverse of the nation's largest cities.

Downtown Los Angeles has assumed center stage with its LA Express Park program as the Department of Transportation has revamped the city's parking operations to realize its goals of increasing the availability of public parking spaces and decreasing traffic congestion and pollution.

A 4.5-square-mile area in downtown supports LA Express Park™, a program that fuses technology and demand-based pricing into an innovative parking management strategy. Created as one component of the Los Angeles Congestion Reduction Demonstration with $15 million in grants from the U.S. Department of Transportation and $3.5 million in city funds, the program uses technology to help the city realize its goals of increasing the availability of limited parking spaces, reducing traffic congestion and air pollution, and encouraging use of alternative modes of transportation. LA Express Park™ launched on May 21, 2012.

Program Goals

LA Express Park™ was created to make traveling and parking downtown easier by making more parking available in the area and by giving drivers several ways to find where parking is available.



Program Features

The LA Express Park™ program in downtown Los Angeles incorporates several elements as key components: new parking meter technology; parking space vehicle sensors; a real-time parking guidance system; an integrated parking management system; and the LADOT Parking Management Center.

The Use of Demand-Based Pricing

Demand-based pricing is a concept used to better match the availability of parking spaces to the demand for those spaces. When demand for parking is low, rates are low. When demand is high, rates increase. The concept helps motorists decide when to make trips and whether to use alternative modes of transportation based on where there is available parking and how much it will cost.

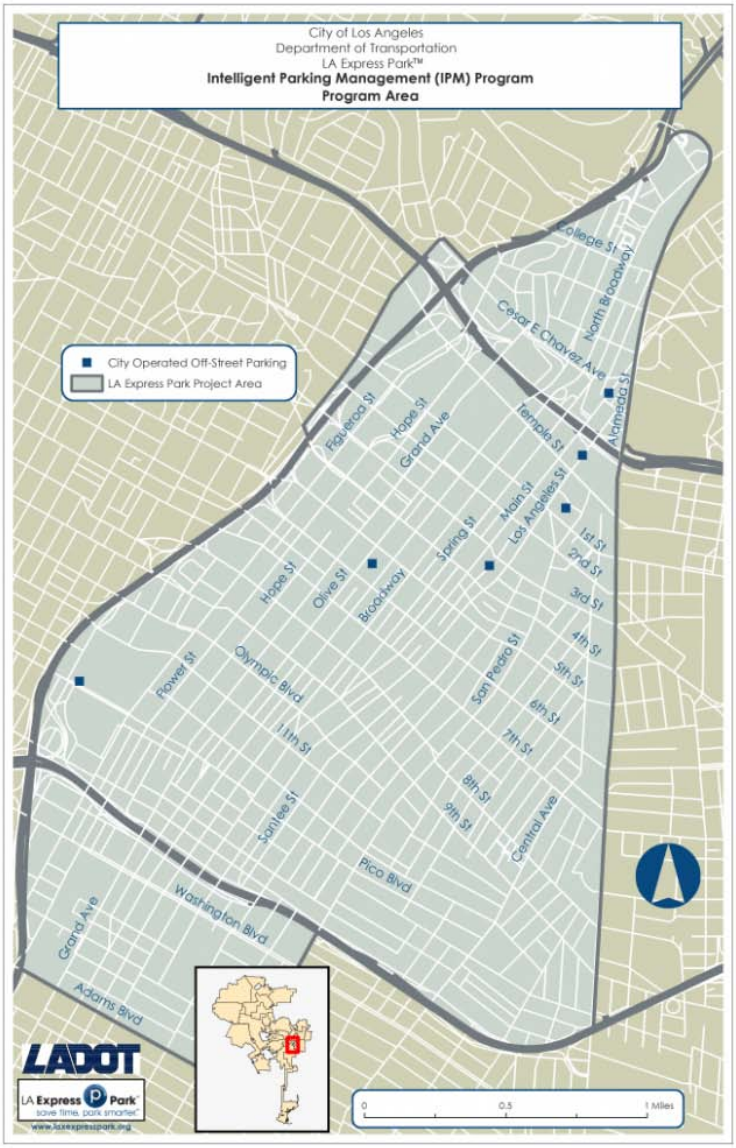
The ultimate goal of this innovative project is to make driving and parking in downtown Los Angeles easier. Save time, park smarter.

Program Features and Benefits

Features include:

- Smartphone apps
- Changeable message signs
- Cruising for a parking spot is reduced
- Reduced cruising = reduced traffic congestion
- Reduced traffic congestion = Reduced emissions + Improved travel times for other modes particularly transit
- Demand-based pricing increases parking availability:
    - Adds one or two spaces per block
    - Reduces driver frustration
    - Better utilization of underused garage parking
    - Park Smarter
    - Real-time parking information available:
        - LA Express Park website
        - Smartphone apps
        - Go511
        - Changeable message signs
    - Paying for parking is easier with options:
        - Coins
        - Credit & debit cards
        - Mobile apps and NFC on Smartphones
        - Can add time to your meter using Smartphone apps
        - LA Express Park will result in more effective use of the on street parking supply and improved economic activity from more open spaces

Program Area



Parking Meter Technology

- Pay stations serve multiple parking spaces on a single block
- Single-space meters accept a variety of payment methods
- Expanded payment options include debit/credit cards, coins and cell phone payment
- Parking rates depend upon parking demand, time of day and length of stay

Parking Guidance System

- Changeable message sign
- Changeable message signs display key information for available parking spaces at select locations
- Drivers with cell phones can tap into the system to find spaces using voice-recognition software

- Web-enabled applications for Smart Phones such as Blackberrys and iPhones access system

Vehicle Sensors

- Sensors placed in parking spaces tabulate parking space occupancy and relate data to the parking management system
- Occupancy data is integrated with meter data to support optimized rates, time limits and hours of operation
- Information helps LADOT traffic officers set enforcement priorities to ensure compliance

Parking Management System

- Stores all transaction and occupancy data
- Performs advanced analysis to assist in setting parking rates, limits and hours of operation
- Provides parking and meter data to LADOT staff to optimize operations

Parking Management Center

Currently operating in the City, it displays real-time information from LADOT's parking pilot programs

A summary of accomplishments is provided in the project reference files in presentation entitled: ExpressPark™ Intelligent Parking Management for Downtown Los Angeles.

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Charlotte, North Carolina

Introduction:

Charlotte is the largest city in the state of North Carolina and the seat of Mecklenburg County. In 2013, the estimated population of Charlotte according to the U.S. Census Bureau was 792,862 making it the 16th largest city in the United States based on population. The Charlotte metropolitan area ranks 23rd largest in the US and had a 2013 population of 2,335,358. The Charlotte metropolitan area is part of a sixteen-county market region or combined statistical area with a 2013 U.S. Census population estimate of 2,493,040.

The city is a major U.S. financial center, with both Bank of America and Wells Fargo's East Coast operations headquartered in the city.

Charlotte's Center City has undergone dramatic growth and change over the past decade. From the development of new cultural venues and educational institutions to beautiful parks, walkable streets, and new housing, restaurants and shops, the evolution has been remarkable.

These changes have resulted from many successful planning efforts, collaborative partnerships, and strategic investments by the public and private sectors. Combined, they have led to the rebirth of Center City as a vibrant focal point of a thriving region.

Charlotte Center City 2020 Vision Plan

In 2010 the creation of the Charlotte Center City 2020 Vision Plan became a critical strategy to ensure a promising future for Center City and the greater region. A cooperative effort among the City of Charlotte, Mecklenburg County, and Charlotte Center City Partners, the 2020 Vision Plan is a comprehensive, strategic plan that provides a "big picture" framework and unifying vision for Center City growth and development.

The Charlotte Center City 2020 Vision Plan sets forth a bold vision for the future that is unique to this modern, livable and gracious City. It provides a set of innovative, transformative strategies that chart the course for achieving the vision. And it outlines implementation actions and can be downloaded from the link below:

http://files.charlottecentercity.org/2020-VisionPlan.pdf

Plan Recommendations Summary

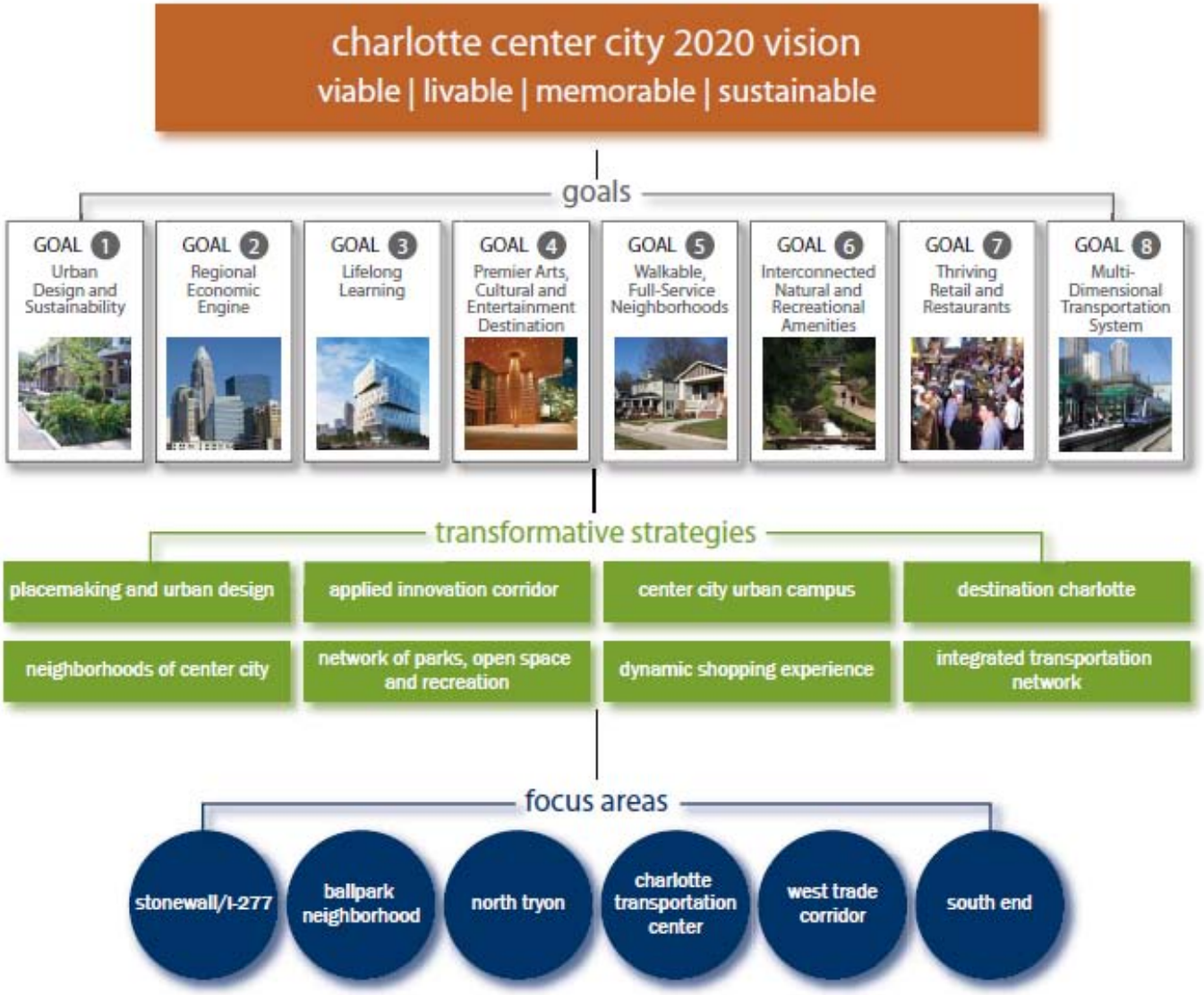
The 2020 Vision Plan recommendations are strategic, broadly supported directions that will together transform the future of Center City. They build upon the Vision Framework as well as the goals and actions of past planning initiatives.

The recommendations respond to goals articulated by Envision: Charlotte—the public-private collaboration that is leading Charlotte to become a global model for environmental sustainability. The recommendations are also derived from community outreach, specific design analysis, best practices research and technical studies that were conducted throughout the 2020 Vision Plan process. The plan was created by the lead firm MIG with partners MIG, Cole Jenest & Stone, Kimley-Horn & Associates, Inc. and Wray Ward.

Goals - Vision Framework Diagram

The Vision Framework Diagram below illustrates how the Vision and Goals inform and guide the 2020 Vision Plan recommendations. As described, the Vision and Goals are a synthesis of the community input received throughout the planning process. Together they represent the desired future for Center City.

The remaining elements of the Vision Framework Diagram highlight the specific recommendations that are described in detail in the following chapters. The recommendations articulate what, where and how the vision will become a reality. Chapter 3 outlines eight Transformative Strategies that will propel Center City toward achieving the Goals with a collection of specific projects, policies and programs. Chapter 4 details six Focus Areas for future development and redevelopment that will catalyze significant change in support of the 2020 Vision. Together, the elements of the Vision Framework Diagram chart the course for the next decade of growth and prosperity in Charlotte Center City.



On- and Off-street Parking:

On-Street Parking

The City's On-Street parking program is known as Park-It!

The Park It! On-street Parking Program is a public/private partnership between the Charlotte Department of Transportation and Standard Parking Plus. SP+ manages the day-to-day operations. There are 1,100 metered spaces downtown; this does not include non-metered spaces. Digital Payment Technologies "Luke" meter accept credit cards, debit cards, coins and the Charlotte Coin. Meters rates vary according to locations. Most metered spaces, located in high-demand areas, are $0.25 for each 15 minutes. Those located on the perimeter of the city are $0.50 per hour.

Meters are monitored from 7am to 6 pm, Monday through Friday, except for weekends and most holidays. Meters on South Blvd. are enforced 24 hours a day, seven days a week (parking signs and stickers attached to parking meters warn motorists of the 24-hour enforcement). Park It! agents enforce parking rules in the Center City area on weekends and during special events.

Off-Street Parking:

Almost all the off-street parking in Charlotte is privately owned.

A private firm "AboutParking.com" which started in Charlotte created a web-based information platform that provides a comprehensive resource for all parking location in and around Charlotte. You can search for convenient hourly, daily and monthly parking by address, business or landmark. Many locations offer online payment, so you can reserve your space ahead of time! To view this interesting website visit: http://www.aboutparking.com/.

The About Parking program has now expanded to other cities as well including:
Atlanta, Boston, Buffalo, Chicago, Cleveland, Columbus, Dayton, Denver, Kansas City, Houston, Los Angeles, Minneapolis/St. Paul, New York, Orlando, Philadelphia and Tampa.

Transportation Demand Management:
Charlotte is one city referenced in a document entitled "Integrating TDM into the Planning and Development Process". This document can be referenced at:
http://www.icommutesd.com/documents/tdmstudy_may2012_webversion_000.pdf

Charlotte also has a nicely done Cycling Guide which can be downloaded at:
http://charmeck.org/city/charlotte/Transportation/PedBike/Documents/2011%20Charlotte%20Cycling%20Guide%20Combined%20Final.pdf

Another document produced by the Charlotte DOT is called: Bicycling to Healthy Living. A link to this document is provided below:
http://charmeck.org/city/charlotte/Transportation/PedBike/Documents/BikeHealthyLiving.pdf

Curb Lane Management Study

The City of Charlotte has recently initiated a project to improve the on-street parking experience in Uptown. The project aims to find a new and more consistent method for communicating current and future parking policies. The on-street parking system has been evolving to keep pace with Uptown growth. That growth has brought some substantial changes over time including the addition of new parking spaces, removal of others, balancing parking with loading and valet services and new ways of metering and paying for parking. With all of this change, the existing system is in need of reevaluation to reduce confusion and add consistency throughout Uptown.

The Curb Lane Management Study was completed in July of 2011 and can beviewed at the following link:
http://charmeck.org/city/charlotte/Transportation/Parking/Documents/small%20CLMS_FinalReport_11_0211.pdf

Recommendations include the following:

- Standardize the usage of curb space from block to block.
- Clarify curb use rules through improved signage.
- Establish public parking spaces that don't transition to other uses at night.
- Increase the number of on-street public parking spaces.
- Develop pilot projects that test the recommended concepts.
- Traffic and parking use on Tryon Street

The CDOT implemented recommendations from the Curb Lane Management Study on Tryon Street. So far, the new signage and designation of curb use has been a success. Next steps are to implement the recommendations on all Center City Streets. Staff will:

- Evaluate streets as development occurs, and adjust uses as dictated by those changes.
- Evaluate and change curb use as the City converts some streets from one-way to two-way operation.
- Implement recommendations on all streets in the Center City as resources allow.
- Review by citizen/business request, and implement identified changes if doing so does not create confusion for motorists.

Prior to implementing the pilot project, a "pre-pilot" sign mock-up was tested for two days in December of 2011 on two blocks of Martin Luther King Jr. Boulevard. There were 187 respondents. Participants were encouraged to drive along the street where temporary signs were installed and to take an online survey about on-street parking signs. Two different types of signs were tested. This test was critical in determining which type of signs should be installed for the official pilot test.

Though the pilot includes three streets in Center City, the Tryon Street portion of the pilot project will bring the most changes, notably:

- The rush hour restrictions will be removed. Motorists will be able to park 24 hours a day. Currently, motorists cannot park on-street from 7-9 a.m. or 4-6 p.m.
- Public parking will never transition to other uses at night as they do today.
- Motorists will notice additional public parking spaces on-street.
- Finally, motorists will see new signs that are intended to help clarify where a motorist can and cannot park on each block.

Zoning Code Requirements:

In 2013, the Charlotte-Mecklenburg Planning Department undertook a comprehensive assessment of the Charlotte Zoning Ordinance, along with a consultant team led by Clarion Associates, and including Kittelson & Associates and Opticos Design.

The project focused on how well the current Zoning Ordinance implements City policies and plans, such as the Centers, Corridors, and Wedges growth framework, the General Development Policies, and recent area plans. The project also looks at best practices for zoning in other communities (both in North Carolina and throughout the nation), and suggests a range of possible new zoning and land use tools to improve the Zoning Ordinance and better achieve Charlotte's planning and development goals.

The project resulted in two main reports:

Zoning Ordinance Assessment Report. The assessment report provides a more detailed overview of the project and identifies how well the Zoning Ordinance is equipped to implement adopted plans and policies, as well as other strengths and weaknesses of the ordinance. A link to this report is provided below.

http://charmeck.org/city/charlotte/planning/Documents/ZOPA.pdf

Zoning Ordinance Approach Report. This document looks at best practices for zoning ordinances generally and possible tools for an updated Charlotte Zoning Ordinance in the future, whether as a result of incremental updates or a major comprehensive revision. A link to this report is provided below.

http://charmeck.org/city/charlotte/citymanager/CommunicationstoCouncil/Memo%20attachments/Zoning%20approach%20report.pdf

Raleigh, North Carolina

Introduction:

Raleigh is the capital of the state of North Carolina as well as the seat of Wake County. Raleigh is known as the "City of Oaks" for its many oak trees, which line the streets in the heart of the city. The city covers a land area of 142.8 square miles. The U.S. Census Bureau estimates the city's population to be 431,746 as of July 1, 2013. It is also one of the fastest-growing cities in the country.

Raleigh is home to North Carolina State University and is part of the Research Triangle area, together with Durham (home of Duke University) and Chapel Hill (home of University of North Carolina at Chapel Hill). The "Triangle" nickname originated after the 1959 creation of the Research Triangle Park, located in Durham & Wake Counties partway between the three cities and their universities. The Research Triangle region encompasses the U.S. Census Bureau's Raleigh-Durham-Chapel Hill Combined Statistical Area (CSA), which had an estimated population of 2,037,430 in 2013. The Raleigh Metropolitan Statistical Area (MSA) had an estimated population of 1,214,516 in 2013.

Zoning Code Requirements:

The City of Raleigh developed a handbook intended to be a guide to interested citizens and others who wish greater familiarity with zoning in Raleigh. The actual legal document that establishes and describes the zoning districts is the Raleigh City Code, Volume II, Part 10 Chapter 2. The Zoning Code, not this guide, is the ultimate authority regarding zoning in Raleigh.

The Raleigh Zoning Handbook can be downloaded from the following link:

http://www.raleighnc.gov/business/content/PlanDev/Articles/Zoning/ZoningandRezoning.html

The City of Raleigh is in the process of rezoning approximately 30% of the City. This rezoning will update the official zoning map to reflect the new zoning districts adopted in the Unified Development Ordinance (UDO). The UDO is a complete rewrite of the existing zoning code, which governs land use. Below is a link to the draft UDO and an interactive map that allows users to view existing and proposed zoning districts.

http://www.raleighnc.gov/content/extra/Books/PlanDev/UnifiedDevelopmentOrdinance/

Odense and Copenhagen, Denmark

Introduction:

Odense (Danish pronunciation: [ˈoðʔn̩sə] is the third largest city in Denmark. It has a population of 172,512 as of January 2014, and is the main city of the island of Funen. Odense has close associations with Hans Christian Andersen who is remembered above all for his fairy tales. He was born in the city in 1805 and spent his childhood years there.

There has been human settlement in the Odense area for over 4,000 years, although the name was not mentioned in writing until 988, and by 1070, it had already grown into a thriving city. Canute IV of Denmark, generally considered to be the last Viking king, was murdered by unruly peasants in Odense's St Alban's Priory on 10 July 1086. Although the city was burned in 1249 following a royal rivalry, it quickly recovered and flourished as a centre of commerce in the Middle Ages.

After a period of decline, large-scale plans for development were made during the 18th century, which led to the rebuilding of Odense Palace and the building of a canal to the Port of Odense, facilitating trade. In 1865, one of the largest railway terminals in Denmark was built, further increasing the population and commerce, and by 1900, Odense had reached a population of 35,000. Odense's Odinstårnet was the second tallest tower in Europe when built in 1935 but was destroyed by the Nazis during World War II. The University of Southern Denmark was established in 1966.

In the present day, Odense remains the commercial hub of Funen, and has a notable shopping district with a diversity of stores. Several major industries are located in the city including the Albani Brewery and GASA, Denmark's major dealer in vegetables, fruits and flowers. The city is home to Odense Palace, erected by King Frederick IV who died there in 1730, the Odense Theatre, the Odense Symphony Orchestra, and the Hans Christian Andersen Museum, situated in the house that was the birthplace of Hans Christian Andersen. In sports, Odense has a number of football clubs including OB, BM, B1909, and B1913, the Odense Bulldogs professional ice hockey team, and the city also hosts the H.C. Andersen Marathon. Odense is served by Odense Airport and Odense station, which lies on the line between Copenhagen and the Jutland peninsula.

Awards, Strategies and Best Practices

"A Green and Sustainable Society"

Creating a green and sustainable society is one of the key goals for Denmark. More than 20 per cent of Denmark's energy already comes from renewable energy, and the goal is to reach 100 per cent by 2050. Much of the renewable energy comes from wind turbines, where Denmark is a world leader when it comes to developing new technology.

The Danish cycling culture is another example of a green and sustainable society and Copenhagen alone has around 400 km of cycle paths, and about 40 per cent of the capital's population commute to work by bicycle.

Odense - Denmark's National Cycle City

The Ministry of Transport has named Odense Denmark's National Cycle City. It's a 4-year project with the primary goal of increasing the share of cyclists and the number of bicycle trips in Odense and continuously improving the safety for cyclists. The Ministry of Transport, the Road Directorate and Odense Municipality support the project.

The goal of the project is very ambitious, since Odense already has the country's highest share of cyclists and longest bicycle trips. Up through the 90s, Odense experienced a growth in bicycle trips of approximately 50 percent, and a simultaneous drop in accidents of approximately 20 percent.

There are still many problems that need to be solved, so Odense's cycling potential is still not fully exploited. There are many short trips where the bicycle could replace the car.

Therefore, Odense is focusing not only on continued expansion of the infrastructure, but also on issues like safety, fun experiences, rights, accessibility, service, maintenance and quality. Odense strives to be a lab and a model city for inspiration in Denmark as well as abroad.

Bicycle Demonstration Projects and Promotional Campaigns

More than 50 demonstration projects were conducted between 1999 and 2002. These projects involve a combination of means, such as top priority to bicycles, campaigns etc.

The first trip of the day often determines the means of transportation the rest of the day. This made it important to put focus on parents and how they transport their kids.

Promotional campaigns play a crucial part of the strategy of Odense Cycle City. Experiences in Odense clearly show that it is crucial continuously to accompany investments in physical improvements for cycle traffic with campaigns in order to promote, motivate and secure cycling. Furthermore, through campaigns it is possible to communicate with the inhabitants and promote bicycling as a liberating, fun and well function transportation form which creates social activities for the whole family.

Campaigns in Odense Cycle City are defined by a high degree of activity and self-participation of the members involved - the strategy is to engage the participants physically in order to "reach" them mentally. Thus, highly expensive written material only plays a minor role in the campaigns. Instead focus is placed on action, social experiences and person-to-person contact between campaign staff and participants.

Promotional campaigns in Odense Cycle City are always tested in a small scale the 1st year. The experiences and evaluation from this then make up for a campaign in full-scale the 2nd year. Campaigns are all held at very low costs thus close co-operation with private companies and sponsorships plays a crucial part. Odense Cycle City also puts great effort to seek an anchoring of the campaigns within the organizations/institutions involved.

Many of the campaigns are directed towards children and young people - the philosophy is that it is easier to establish good than to change bad traffic habits. These campaigns focus on transport to and from day care institutions or schools thereby also addressing the near family as well as the staff in the institutions. By addressing the secondary target group the hope is to create role models and good ambassadors for the children.

Campaigns for children rule out any finger wagging, instead the tone is focused on the many rewards like fun, experiences and freedom the bicycle gives - whether the children cycle alone or together with their parents.

The success of such campaigns depends on the participants' engagement and motivation therefore happenings, smaller gifts, rewards and competitions play a large part. The contact staff in the institutions or schools is especially gifted in order to engage their help.

Competitions during the campaigns can often be divided into two areas: group competition and individual competition. Group competition creates a positive pressure as well as a social feeling within the group and is especially effective in relation to full-scale campaigns. Individual competition often maintains the engagement during the campaign and focuses on creativity and mental hygiene of the individual.

Free Wheeling - a campaign directed towards students in 6th/7th grade and their families

Free Wheeling is based on a large group competition combined with many smaller individual competitions. These competitions are accompanied with educational material plus a large number of smaller activities and happenings.

In the group competition the students are all equipped with a cycle computer on their bike. Each class then competes with one another. Bicycles are offered to students with no bikes and full service is offered during the competition to secure safety. Most of the material, gifts and equipment are sponsored.

The campaign has been launched as a test campaign this spring, i.e. 1 school has participated in order to collect valuable information for next year. The campaign has been very promising and half of the community's 35 schools have already signed up for next year.

Green Wave for Cyclists

All technology in the road system applies to cars, for instance traffic lights at intersections, parking search systems, and directions. In Odense, they actively question and debate this unequal prioritization, and they are the first city in the world to have introduced a special “green wave” for cyclists between two intersections controlled by traffic lights. (See a video of the “Green Wave” application at: http://www.youtube.com/watch?v=mEOakvjuIEs)

In addition, we have reversed the priority in places where cyclists cross roads with light traffic. That means that cars have to stop for cyclists.

Bike Parking Quality and Design

Odense has established more than 2000 new bicycle parking spaces over the past two years. Each solution stresses beauty, aesthetics, and particularly design and functionality.

At Odense Central Station, there is underground bike parking that features video surveillance, music, special locking arrangements, water fountains, baggage lockers and showcases for bicycle equipment. In addition, the parking area also features Denmark's most spectacular bike store with quality bikes and equipment, bike rental and a repair shop.

Bicycle Festival

The town hall square hosts an annual bicycle festival, and there is no admission for low quality bikes - in other words, no bikes under 400 Euro.

Bicycle Path Maintenance

Quality also extends to the upkeep of all bicycle paths in Odense. This means that tasks like putting down even surfaces, keeping the paths free from dirt, garbage, broken glass and so on, and snow clearing is carried out at the same high level as on the largest roads in the municipality.

The municipal road inspectors also inspect all bike paths regularly - on bike, of course. Odense has also formed a special "bicycle-reporting-group" who ride around with digital cameras and mobile phones observing and reporting information to the municipal service departments so that all problems can be fixed promptly.

Odense: Masterplan for Sustainable Mobility

With a unique approach Odense Municipality has submitted a masterplan for sustainable transport solutions that are intended to lead the way towards the goal of CO2-neutrality in 2025. It is a comprehensive strategy that at once aims to reduce car traffic in the inner city and increase individual mobility through improved conditions for pedestrians, cyclists and public transportation. Odense already occupies a prominent position among the world's cycling cities, and the new master plan can be seen as an effort to consolidate this position.

Under the motto "playing is living" Odense municipality has presented its vision for the coming 10 years. An important link in the long-term strategy is the development of Odense as a sustainable and healthy city, which means that sustainability becomes an integral part of all political decision making. The ambition is to be CO2 neutral in 2025 and the three primary areas that will ensure the fulfilment of that ambition are traffic, energy and construction. In 2008, the municipality presented its Plan for Traffic and Mobility that provides a comprehensive sustainable solution to traffic related challenges.

The aim is to change habits through a network of bike trails, pedestrian passages and alternative transportation options that offer viable, sustainable alternatives to driving. Car traffic in the city centre will be reduced significantly by closing the busy Thomas B. Thriges Gade and converting the whole area into a coherent urban space. By shifting traffic from cars onto streets, alleys and pathways, the activity and, as a consequence, the diversity of social life in the area is increased. And by turning motorists into cyclists and pedestrians, you reap the double rewards of a greener environment and healthier citizens. In this way The Plan for Traffic and Mobility connects with municipal policies for both culture and health.

Mobility is an important principle of the vision, since Odenses goal is to create the best possible conditions for pedestrians, cyclists and public transportation. Odense is one of the world's leading bike cities and already has a well-developed infrastructure, while the public transportation system still has room for improvement. The municipality does not regard the public transportation system as a business but, rather, as a service and an environmental effort to be integrated into urban development. This offset allows the municipality to make a coordinated effort that encourages the use of public transport. Junctions that connect the various means of transport, parking facilities at the motorway with connection to busses and bicycles, and bicycle parking and "share bikes" at the outskirts of the city are all strategies to reduce car traffic in the inner part of the city.

Overall the ambition is to have 60% more bike rides and 60% fewer traffic deaths in 2025, to increase the travels by public transport with 200%, to reduce driving in the city with 25%, to have 75% less people burdened by harmful pollution and 90% less burdened by traffic noise.

Cycling Solutions

Odense will reinforce its image as an active and healthy Bike City, which was created in a large scale project from 1999-2002 that both increased the number of bike rides and reduced the number of traffic accidents by 20%. Measured in years the health of the citizens of Odense increased with 2131 years in that period. With a 510 kilometres long network, 90% of the city's

planned cycle trails are already established, but the safety and passability of cyclists still need improvement. This will come through the establishment of speed zones in the city centre, prioritized cycle routes, "green waves" and exemptions for cyclists in one-way traffic. One idea is to allow cyclists to turn right at red lights - what is otherwise known as a California Roll.

Intelligent Traffic Systems (ITS) is another solution. Odense already has bike barometers that count the total number of cyclists in the city. These must be extended with information about temperature, weather, expected time of arrival, etc. By placing sensors in bicycle racks, active signs and SMS services can provide information on vacancy.

Another strategy is the introduction of public "share bikes", which could ease the transition from car to bicycle for commuters. By supplying the bikes with a chip, it is possible to book a bike online in advance, which makes it easier to plan trips in conjunction with public transportation. This could be financed by the sale of public advertising space. It is estimated that there is a need for approx. 500 share bikes in Odense, which are to be located at 30-60 sites in the centre, at the railway station area, at schools, universities and hospitals..

”Parking Routes” (P-Route)

The attempt to keep cars out of the city centre represents a break from 50 years of urban planning. Now Odense city centre will be divided in to four zones, and motorists have to travel in and out of the same zone. When driving between the zones is not possible, the municipality expects that most people will chose walking or public transportation to get around in the city centre. With the transformation of the Thomas B. Thriges Gade, a plan for the redistribution of traffic is necessary. The solution is the establishment of a P-route (Parking route) on surrounding streets. The route encircles the city centre and will guide motorists to the nearest car parks. Since this solution entails an increase in traffic on smaller streets, noise and air pollution are inevitable consequences. Noise pollution can largely be countered by a decrease in the top speed (see below), whereas air pollution is deemed a necessary, initial cost in the attempt to improve the competitiveness of sustainable means of transportation and clear the centre of car traffic.

Noise Pollution Reduction

A noise increase of 6-10 decibel will be experienced as a doubling of the level of sound. However, if there are two equally powerful sources of noise, the volume is not doubled. Rather, it is 3 decibels higher than the noise sources separately. If traffic on a street in a city area is doubled, the increase in noise will be approx. 3 decibels. If the speed limit on the same street is lowered by 10 km/h, the noise level is reduced by 2.5 decibels. In this way the level of noise will be almost unchanged if traffic on a road is doubled while the speed limit is lowered by 10 km/h.

”Energy Strategy 2050”

The Danish Government recently unveiled its “Energy Strategy 2050”, which describes how the country can achieve its independence from coal, oil and gas by 2050 and significantly reduce its greenhouse gas emissions.

The energy strategy contains a raft of initiatives that will reduce the energy industry's use of fossil fuels by 33 percent in 2020, compared with 2009. The reduction will put Denmark well on its way to complete independence of fossil fuels by 2050.

"Denmark is the first country to present such a specific and ambitious strategy for achieving independence from fossil fuels," says Minister for Climate and Energy Lykke Friis.

The strategy calls for a significant increase in renewable energy obtained from wind, biomass and biogas which over the next decade will increase the share of renewables to 33 percent of energy consumption, if the initiatives in the strategy are implemented. Doing so would place Denmark among the top three countries in the world in terms of overall increase in renewable energy as a share of total energy consumption. Part of the increase would also rely on increasing use of biogas for heat, and a number of new initiatives will be put forth in order to promote the production of biogas.

By 2020, construction of new offshore wind turbines at the Kriegers Flak wind farm, coastal wind turbines and land-based turbines will approximately double the wind power production in Denmark. Wind power alone is expected to cover more than 40 percent of overall electricity consumption by 2020, compared with about 20 percent today. By 2020 more than 60 percent of electricity consumption will by covered by renewable energy. Meanwhile, strengthened energy efficiency efforts will reduce gross energy use by 6 percent in 2020, compared with 2006 levels. In reaching the goal, Denmark will meet the energy efficiency goals set out in the 2008 energy agreement, and the country will retain its position as a world leader in the area.

The strategy offers an economically responsible path to the conversion of the Danish energy supply, and includes specific initiatives, that are all fully financed and which will not damage the nation's competitiveness. Homeowners will experience moderate increases in the costs of heat and electricity, but will also be given opportunities to lower their energy expenses through greater efficiency. Companies can expect added expenses amounting to 0.1 percent of the rise in their gross revenue growth by 2020.

Minister for Climate and Energy Lykke Friis underscores that the costs of converting from fossil fuels to green energy should also been seen in the light of expected increases in the cost of fossil fuels.

"No one is saying that carrying out major investments in energy efficiency and expanding our use of renewable energy is going to be free. But the alternative: Continued dependence on fossil fuels will, as all signs indicate, only become more expensive in the years to come. Converting to renewable energy will shield Denmark from the effects of increasing energy prices."

"This is no small task, however. Over the next 40 years, we need to cut our consumption of coal, oil and gas four times faster than we have over the past 40 years. The government's energy strategy shows that this can be done without burdening state finances and without eroding businesses' competitiveness. And, if we are smart, converting to renewable energy will also give us new opportunities to increase our exports of green energy technology at a time when the global market for such products is growing."

Read the Energy Strategy here

Further information on the Danish Energy Strategy 2050 is available here and on the Danish Energy Agency's website

You can read the joint statement by Chris Huhne, UK Secretary of State for Energy and Climate Change, and Dr. Lykke Friis, Danish Minister for Climate and Energy here

Contact: Press secretary Jesper Zølck Felbo, Danish Ministry of Climate and Energy, +45 5087 4881 Or Deputy Director Kristian Møller, Danish Energy Agency, +45 3392 6667

Copenhagen's Bike Plan

During the Odense research we also came across an impressive document from Copenhagen. Copenhagen's Bicycle Plan: A BETTER **BICYCLE** CITY A MORE **LIVEABLE** CITY is briefly introduced below and link to the plan is provided.

Introduction

A bicycle-friendly city is a city with more space, less noise, cleaner air, healthier citizens and a better economy. It's a city that is a nicer place to be in and where individuals have a higher quality of life. Where accessibility is high and there is a short route from thought to action if one wants to head out into nature, participate in cultural or sports activities or buy locally.

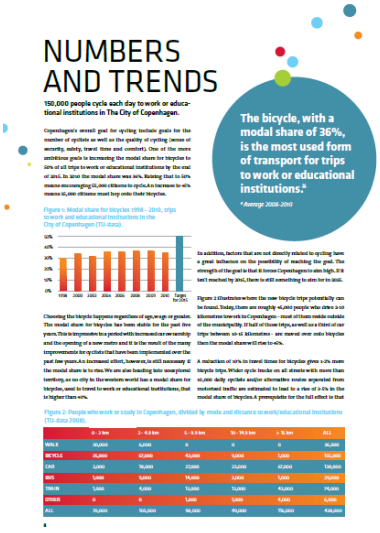
Bicycle traffic is therefore not a singular goal but rather an effective tool to use when creating a livable city with space for diversity and development. Fortunately, it pays off to invest in urban cycling. Increased cycling levels give society less congestion, fewer sick days, longer life expectancy, less wear and tear on the roads and less pollution. Cycling initiatives are also inexpensive compared with other transport investments.

The eyes of the world are already focused on Copenhagen – The City of Cyclists. By continuing the ambitious work towards becoming the world's best cycling city, we maintain the many positive stories about the city. Stories that brand Copenhagen as a livable, innovative, sustainable and democratic city with a political will to lead the way in the battle for an improved

quality of life for the citizens. By aiming to be the best in the world we can show the way for other cities around the world and raise the bar for what is possible in the area of urban cycling.

The plan can be viewed at the following link:
http://kk.sites.itera.dk/apps/kk_pub2/pdf/823_Bg65v7UH2t.pdf

The plan contains a wealth of strategies and success metrics.



Freiburg, Germany

Introduction:

The City of Freiburg is internationally well known for its environmental approach and its extensive use of solar energy and other renewable sources. Freiburg Green City can share experiences gained over many years and showcase a multitude of effective technical and organizational solutions related to sustainable energy and transportation management.

Freiburg, a city of about 220,000 people and 155 km^2 of land, is located in the southwest corner of Germany, at the edge of the Black Forest and near the borders with France and Switzerland. It was founded in the year 1120, and through centuries of growth and modernization still maintains its old world charm and surrounding beauty.

With its large academic community, Freiburg was an early stronghold of the Green Movement in the 1970s. A successful protest against a nearby nuclear power plant is thought to be the galvanizing moment.

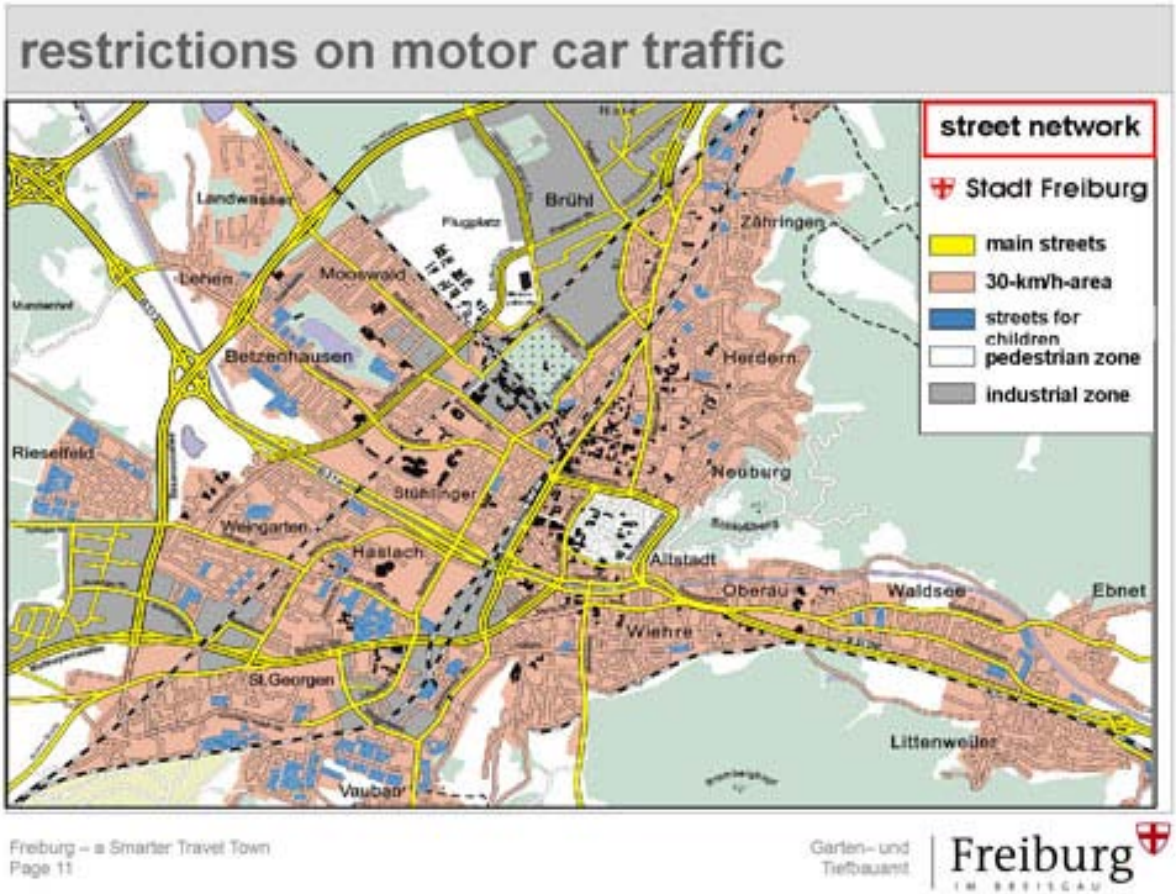
Freiburg promotes itself as a Green city—especially in the areas of transportation, energy, waste management, land conservation, and green economics—and the city has won various national and international environmental awards. In the areas of energy and green economics, it is particularly outstanding.

Transportation

Freiburg was heavily bombed during World War II; little remained of the city center besides the cathedral. It was decided to rebuild without altering the city's character, following the old street plan and architectural style. As the roads were rebuilt, they were widened just enough for a tram track, not for more lanes of cars.

In 1969 Freiburg devised its first integrated traffic management plan and cycle path network. The plan aims to improve mobility while reducing traffic and benefitting the environment and is updated every 10 years. It prioritizes traffic avoidance and gives preference to environment-friendly modes of transport such as walking, cycling, and public transit. Traffic avoidance is achieved in conjunction with urban planning that makes Freiburg a city of "short distances"—a compact city with strong neighborhood centers where people's needs are within walking distance.

In 1973 the entire city center was converted to a pedestrian zone (shown in white on the map below).



Source: Schick, n.d.

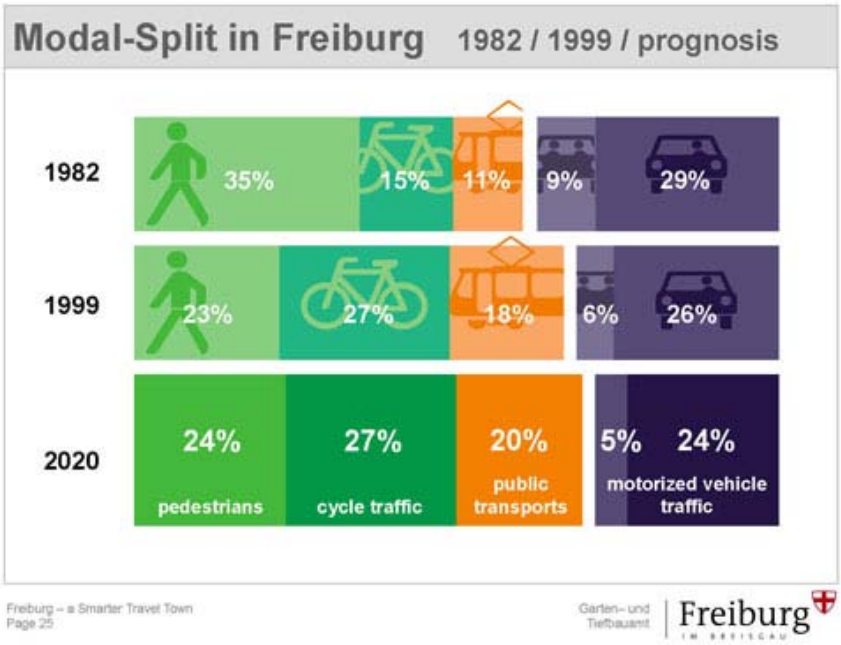
The public transit network has been steadily expanded and modernized since 1972. Today the tramway network comprises 30 km and is connected to the 168 km of city bus routes as well as to the regional railway system. 70% of the population lives within 500 meters of a tram stop, and the trains appear every 7.5 minutes during rush hours. Besides working to make public transport convenient, fast, reliable and comfortable, the city administration also made it cheap. In 1984 the city-wide Environmental Card was introduced for 38 DM per month (US$13 at the time) for unlimited travel within the urban network (tram and bus). A monthly ticket had previously cost 50 DM.

In 1991 the Environmental Card was replaced with a RegioCard. The current price is 47 euros (US$61) per month. The RegioCard allows passengers unlimited use of not only Freiburg's urban transit but also public transport in the whole region—about 2,900 km of routes of 17 different transportation companies, plus the tracks of the German Rail. In its first year alone, the card is credited with increasing regional public transit trips by 26,400 while the number of car trips fell by 29,000. Besides this, there is a policy that any ticket for a concert, sports event, fair, or big conference also serves as a ticket for public transport.

City tram
Source: Schick, n.d.

Freiburg's administration has developed over 400 km of cycle paths. This includes bike-friendly streets, streetside bikepaths, and separate bikepaths (along the river Dreisam). About 9,000 bicycle parking spaces were also developed, including "bike and ride" lots at transit stations. Cycling is promoted with free maps and other information.

As a result of all this, between 1982 and 1999, the contribution of cycling to the city's volume of traffic increased from 15% to 28% and public transport from 11% to 18%, while miles travelled by car fell from 38% to 30% of the total (see chart below).



Source: Schick, n.d.

Another notable aspect of Freiburg's transport policy is traffic calming. As the map above shows, for most streets (other than main streets) the speed limit is 30 km (19 mi) per hour. On some streets (shown in blue) cars can travel no faster than walking speed, and children are allowed to play in the streets. Residents may apply for this status for their street by petitioning the city's Department of Civil Engineering. This slowing of traffic and mixing of uses is reminiscent of the approaches recently advocated by Victor Dover at his talk held in Boulder at the Chautauqua.

Parking space management also contributes to the reduction of motor vehicle traffic. Multi-story garages are located at the edge of residential districts and at major mass transit stations. The new district of Vauban is one extreme example of parking space management. Parking there is limited to garages on the outskirts of the neighborhood. Each parking space costs 18,000 Euro (approx. US$23,000). To avoid this cost, some people are said to lie about owning a car in their annual declarations. But officially there are about 250 motor vehicles per 1,000 Vauban residents, compared to 423 for Freiburg as a whole (and 500 for Germany).

Car-sharing is also encouraged. About 140 vehicles currently are available through the Freiburger Auto-Gemeinschaft e.V. Members have occasional use of a car for big shopping trips or going to the mountains for skiing. They also receive a yearly free pass for public transport within the city, and a 50% discount on national rail tickets.

Looking to the future, the official "traffic development plan 2020", after consideration of various scenarios and their costs, includes 4 measures for pedestrian traffic, 13 for bicycle traffic, 12 for city public transport, 7 for regional public transport, and 19 for motor vehicles.

Energy

Freiburg's progressive energy policy has its roots in the early 1970s, when the state of Baden-Württemberg's plan to build a nuclear power plant in the town of Wyhl, just 30 km away, provoked intense protest among Freiburg residents. Thomas Dresel (who is now the city environmental manager) recalls that there was widespread civil disobedience; the conflict began to look like a "civil war." Dresel says that as the protesters stood there in the mud (created by police water cannons), they began to ponder the question, If not nukes, then what? The plan was dropped in 1975, and in the years since then Freiburg has sought to become a model of sustainable energy development. The Chernobyl disaster of 1986 and concern over acid rain damaging the Black Forest—and more recently concern regarding climate change—strengthened the determination to find alternatives to nuclear and fossil fuel energy. Germany's national energy policy, such as the decision to phase out nuclear power and the 2001 federal renewable energy law, which requires utilities to buy power from independent producers, promote such a policy as well.

Freiburg's energy policy has three basic pillars: Energy saving, efficient technologies, and renewable energy sources.

Energy Saving

In 1992, Freiburg's building design standards were amended to require that all new houses built on city land (or land sold by the city) use no more than 65 kilowatt-hours of heating energy per square meter per year, compared to the national standard of 75 kWh/m^2/yr. This adds about 3% to the cost of the house, but the energy savings make it worthwhile in a short time. It is estimated that the standard reduces heating oil consumption from 12-15 liters to 6.5 liters per square meter. The entire new districts of Vauban and Rieselfeld were built according to this standard.

To improve energy efficiency in existing buildings, Freiburg instituted a support program for home insulation and energy retrofits. About 1.2 million Euros in subsidies were provided in 2002-2008, complementing about 14 million Euros of investments. Reduction of energy consumption averaged 38% per building. Most municipal buildings (e.g., schools, offices) were also retrofitted.

In 2008, after the federal government revised its standard downward, so did Freiburg—to ensure that the city stays at the forefront of low-energy development. A two-step revision was to be implemented in 2009 and 2011 to move new housing even closer to the "passive house" standard of just 15 kWh/m2/yr. These cost 10% more to build, but can achieve an 80-90% reduction in energy consumption.

Efficient Technology

Chief among the efficient technologies developed in Freiburg (in fact, the only one mentioned in the literature) is combined heat and power (CHP). As the name implies, CHP produces both electricity and heat by capturing the waste heat from electricity production to generate more electricity and useful heat, e.g., for district heating systems. About 50% of Freiburg's electricity is now produced with CHP (compared to just 3% in 1993). There are 14 large-scale CHP plants and about 90 small-scale CHP plants (e.g., at the city theater and indoor swimming pools). The two large-scale plants located near landfills use landfill gas as fuel. The others use natural gas, biogas, geothermal, wood chips, and/or heating oil. Vauban's CHP plant, for example, uses 80% wood chips and 20% natural gas to provide the district with electricity and heat. An important concomitant development is new district heating systems which can replace individual oil or gas burning furnaces.

CHP plant in Vauban
Source: Wörner n.d.

The increase in CHP's share from 3% to 50% has enabled Freiburg to reduce its reliance on nuclear power from 60% to 30%--and provides local heating at the same time.

Renewable Energy Sources

Renewables at Freiburg's disposal include solar, wind, hydropower, and biomass. (Geothermal is also a possibility, but its use to date has been negligible.)

Solar

Solar energy is by far the most visible renewable resource used in Freiburg. The city is home to approximately 400 photovoltaic installations on both public and private buildings. Prominent among these are:

- The 19-story façade of the main train station
- The roof of the convention center
- The roof of the soccer stadium
- The Solarsiedlung (Solar Settlement) and its neighboring Solarschiff (Solar Ship) business park
- The Solar Factory (SolarFabrik)
- The "Heliotrope," a structure that rotates to follow the sun
- The roof of the city's waste management offices and its recycling center

Solar Settlement and business park
Source: Website plusenergiehaus.de

Heliotrope
Source: Wörner n.d.

SolarFabrik
Source: Freiburg Wirtschaft Touristik u. Messe GmbH

Currently Freiburg's 150,000 m^2 of photovoltaic cells produce over 10 million kWh/year. The 60 "plus-energy" homes of the Solar Settlement create more energy than they consume, and earn 6,000 euros per year for their residents.

Solar thermal (mostly hot water) panels cover 16,000 m^2, but their total contribution to Freiburg's energy supply has not been quantified.

Wind

Unlike coastal or plains areas, Freiburg is not ideally suited for wind energy, since it is in a hilly, wooded area. Still, there are five windmills situated on hilltops within the city's boundaries, producing an average of 14 million kWh/year.

Windmills near Freiburg
Source: Ökostromgruppe Freiburg

Hydropower

The Dreisam River runs through Freiburg, but there are no major hydropower stations. Small, eco-friendly run-of-the-river facilities are on the river and on smaller canals and streams. Hydropower generation within Freiburg amounts to about 1.9 million kWh/year, but the regional utility,Badenova, also imports hydropower. According to Badenova literature, the 120,000 customers who selected “regiostrom basis”—a slightly more expensive, nuclear-free alternative to conventional power—receive half their electricity from hydropower plants in Switzerland and Austria, and half from CHP plants. The 10,000 customers who selected “regiostrom aktiv” are guaranteed 100% electricity from renewable resources—a hydropower plant in Norway. The 1.8 euro-cents per kWh extra they pay goes to the regiostrom fund for developing more renewable energy.

Since January 2009, according to badenova, Freiburg’s 60 trams have been running on 100% renewable energy (80% hydropower and 20% a mix of other renewables).

Biomass

With 16.6 million kWh/year, biomass has the largest share of Freiburg's renewable electricity generation. The Black Forest provides an ample supply of wood chips and wood pellets (much of it waste from woodworking industries). The Solar Factory burns rape seed oil in its CHP plant.

A more exciting innovation is the development of biogas. Through a joint venture of private and city-owned waste management companies, the organic waste from Freiburg's households is fed into a digester that produces biogas and compost. The biogas is burned in a CHP plant to produce about 7 million kWh of electricity, plus heat. In 2009, Badenova subsidiary WÄRMEPLUS switched all three of Freiburg's indoor swimming pools to biogas for their CHP generators. The same year, Badenova began work on three of five planned biogas projects in the region, using mainly corn silage and cow manure as the feedstock. One of the projects is an existing biogas plant where Badenova is adding a refinery to improve the quality of the gas by removing the high carbon dioxide content, making it equivalent to regular natural gas. The gas will be used in CHP plants to produce electricity and heat, but it will also be mixed with conventional natural gas to create "BIO 10," a 10% biogas mixture. This is especially important because since 2008, any homeowner who modernizes his/her heating system must switch to at least 10% renewable energy for heat. On a smaller and more experimental scale, one apartment building in Vauban is equipped with vacuum toilets connected to a biogas digester; in 8 years of experience it seems to work satisfactorily.

Unfortunately, Freiburg's total electricity demand is well over 1,000 million kWh/year, so despite all the efforts described above, only 3.7% of the city's electricity comes from locally generated, renewable resources. This is the same percentage as in 2005, and far short of the 10% goal set by the city council in 2004. However, if solar water heating and imported renewables were included, the number would be much higher. Mayor Salomon expects that the CO_2 emissions reduction report (goal: 40% reduction versus 1992 by 2030) will yield much better results, since it includes heat and transportation as well as electricity, and has a much longer timeline.

Land Conservation

Freiburg is also "green" in appearance. It is home to Germany's largest communal forest, covering over 40% of the municipal territory. The forest is home to Germany's tallest tree—a 63-meter douglas fir. It has a surprisingly diverse terrain and ecosystems—from high mountains to boggy lowlands. About 44% of the forest is used as an "environmentally appropriate economic forest." Wood is harvested at a rate of 35,000 m^3, which is about three-fourths of the amount that grows back in a year. Monocropping is avoided; there is no clearcutting and no use of pesticides. For this sustainable management Freiburg's Forestry Office earned certification from the Forest Stewardship Council, and its timber can be marketed with the FSC eco-label. The remaining 56% of the city forest are nature conservation areas—50% managed and 6% wild.

Freiburg's city forest
Source: Inspirenation 2008

According to the Forestry Office, besides providing wood, and jobs in the forestry and woodworking sectors, the city forest has a wide variety of beneficial functions. It:

- serves as the city's "green lungs" and cleans the air
- moderates temperature
- protects the soil
- stores water
- is a natural and free recreational resource
- provides habitat for wildlife, including rare and endangered species
- gives food from deer, wild pigs, and goats
- beautifies the landscape

Besides the 5,000 hectares of forest, Freiburg has over 600 hectares of parks and 160 playgrounds providing greenery, recreation, and biodiversity. The parks range from the carefully manicured and flowery site of a former international flower show, to the more unkempt nature conservation areas. Pesticides are not used, and only indigenous trees and shrubs are planted. Changing the lawn mowing schedule from 12 times to only twice a year has "markedly revived

the biodiversity in the meadows." 22,000 trees were planted in the parks, and the same number along streets.

Park with bike path along the Dreisam River
Source: City of Freiburg (n.d.)

There are also 3,800 small garden allotments on the outskirts of the city, which serve as private oases for the city dwellers as well as a source of fresh fruits and vegetables. The number is expected to increase, according to the new land use plan.

All this green space is the result of deliberate urban planning that seeks to keep development compact while accommodating population growth. In the new neighborhoods of Vauban and Rieselfeld, for example, the homes are four- to five-story apartment buildings instead of single-family houses, allowing for more green space. (In the Rieselfeld district, 240 hectares were designated as landscape conservation area and only 78 hectares for residential development.) Shops and offices are located on the ground floor of the apartment buildings, allowing residents easy access, on foot or bicycle, to their daily needs—so that "no supermarkets will be constructed on green meadows." The urban planning has been participatory. For the new Land Use Plan 2020, citizens formed 19 working groups to discuss potential construction areas and make recommendations to the city council.

Green Economy

Renewable energy production is encouraged with tax credits from the federal government and subsidies from the regional utility (Badenova provides 200 euros for solar water heaters and 900 euros for photovoltaic systems). But especially noteworthy as an economic model are grassroots financing schemes that allow concerned citizens to invest directly in renewable energy resources. For example, through one local association for the promotion of renewable energy (fesa, or Förderverein Energie und Solar Agentur e.V.), citizens invested over 6 million Euros in 9 windmills, 8 photovoltaic arrays (including the soccer stadium), 1 hydropower plant, and a major energy conservation retrofit project at the Staudinger public school. Investors get a return on their investment and, in the case of the soccer stadium, free season tickets. Under the heading "with us one can buy power plants," Badenova (2009) describes four such plans, the most recent of which bundles wind, hydro, and solar power due to a dearth of new wind sites.` Thus Mayor Dieter Salomon credits the citizens themselves for Freiburg's success:

"Freiburg has developed its profile from eco-capital into the leading centre of competence for alternative energy. The city's many small and large scale alternative energy facilities exist thanks to the dedication of the citizens – citizens who equip their own houses with solar panels, hold shares of communal facilities and order regionally produced electricity from renewable energy through our local energy supplier Badenova" (Inspirenation 2008).

Freiburg has become the European Union's "Solar Valley," similar to California's Silicon Valley. The economic benefits are especially noticeable in the sectors of manufacturing, research and education, and tourism. Overall the "environmental economy" employs nearly 10,000 people in 1,500 businesses, generating 500 million euros per year.

Freiburg companies produce not only state-of-the-art solar cells, but also the machinery needed to manufacture the cells. Companies such as Solarfabrik, Concentrix Solar, SolarMarkt, and Solarstrom are served by a wide web of suppliers and service providers. One exciting new development is Concentrix's creation of solar cells that double the efficiency of photovoltaics by using lenses to concentrate the solar radiation. Overall about 80 business operations employ over 1,000 people in the solar technology industry.

A network of prestigious research institutions has developed in Freiburg, most notably the Fraunhofer Institute for Solar Energy Systems (Europe's largest solar research institute) and the Ökoinstitut. The International Solar Energy Society (a worldwide organization) has its headquarters in Freiburg. According to the City of Freiburg, Centers of private and public research investigating renewable energy resources, such as the Fraunhofer Institute for Solar Energy Systems, function as a center of gravity, around which hundreds of spin-off companies, service providers and organizations are based. These include the Solar Factory, the Regio Freiburg Energy Agency, consultancies, solar architects, a zero-emission hotel and the Future Workshop of the Chamber of Crafts. Also the farmers, foresters and organic vintners profit from the research done in the region by institutions such as the Viticulture Institute, the Forest Research Institute or the Albert Ludwigs University.

The city frequently hosts international conferences that serve the transfer of science and technology. The Photovoltaics Industry Forum was held in 2007, and the Intersolar conference was held in Freiburg every year from 2000 to 2008 (with 53,000 visitors in its last year). Intersolar moved to Munich, but the Gebäude-Energie-Technik (Building Energy Technology) fair takes its place. The city also hosts the annual Freiburg Solar Summits which attract people from around the world.

Environmental education is another booming business. According to the City of Freiburg, in the field of environmental education alone, 700 new jobs were created, among which was a university chair of environmental economics. In the scope of the Solar University, which obtained the status of an elite university in 2007, an Interdisciplinary Centre for Renewable Energies and an international masters study course "Renewable Energy Management (M.sc.)" have been established.

There is also a Solar Training Center for technicians and installers. Environmental education in schools (e.g. the Fraunhofer program for 9th and 10th graders) and outdoors (e.g., forest trails, deer park, and the Eco-Station at Seepark) encourages environmental consciousness in the younger generation.

Besides all the researchers, conference-goers, and students who come to Freiburg from around the world, the city's green reputation also attracts eco-tourists. Even from as far away as China,

South Korea, and Japan, eco-tourists—equipped with solar city maps and bicycles—enjoy the "solar tour."

At least seven of the EcoTipping Points "ingredients for success" are apparent in Freiburg:

1. ***Outside stimulation and facilitation*.** The planned nuclear plant at Wyhl in the early 1970s is said to have been a catalyst for Freiburg's Green Movement. More recently, federal policies regarding waste management and renewable energy promoted Freiburg's progress toward being a Green City. The European Union's directive regarding combined heat and power undoubtedly also played a role.

2. ***Strong democratic local institutions and enduring commitment of local leadership*.** Freiburg's democratically elected mayor and city council, and the various local agencies, set crucial policy in the areas of transportation, energy, waste management, and land use. They also invest money and create jobs that further more environmental protection. Direct citizen participation is important especially in land use planning and energy investments. Participatory decision-making at the neighborhood level governs the Vauban neighborhood.

3. ***Co-adaptation between social system and ecosystem*.** The overall strategy for Freiburg's development has always been to provide for the needs of the people while minimizing environmental harm. Recent improvements in human behavior (e.g., recycling and using public transit) benefit the ecosystem even more. And the green economy ensures that people and land prosper together.

4. ***Letting nature do the work.*** Freiburg is working hard to maximize the use of sunshine for heating homes, heating water, and generating electricity. The large communal forest also provides valuable environmental services.

5. ***Transforming waste into resources***. Freiburg's extensive recycling system makes use of almost every conceivable waste. Paper, plastics, tin cans, glass, and even corks are converted to new raw materials. Energy is derived from wastes such as landfill gas, wood chips, waste heat (CHP), and organic household waste, which in addition provides a high-quality compost for gardens.

6. ***Overcoming social obstacles*.** Freiburgers battled the state government over nuclear power decades ago, and now the problem is wind power. The "Black-Yellow Coalition" (Christian Democrats and Free Democrats) that rules the state of Baden-Württemberg is said to have a "wind blockade policy." (The state government could change in the March 2011 elections.) Also, there seems to be conflict over wind with the regional energy planning authority. Moreover, a "Black-Yellow Coalition" is currently in power at the national level. The federal government recently decided to slow down the phase-out of nuclear power.

7. ***Building resilience*.** Thanks to its green economy, plus another ingredient we notice in many stories—community solidarity and pride—Freiburg is likely to remain a Green City.

Awards, Strategies and Best Practices

City of Vision Award

- The City of Freiburg is often called Germany's "ecological capital" and has been recognized internationally as one of the world's most livable, sustainable and child-friendly cities. In 1993, IMCL awarded the City of Freiburg the IMCL City of Vision Award. Since then, Freiburg has received numerous awards for its leadership in sustainable transportation planning, promotion of walking and biking, traffic calming mechanisms, human scale mixed-use development, renewable energy, protection of nature, and sustainability.\\

Study Tours

- The City of Freiburg disseminates their innovations and improvements in livability and sustainability in recent years by organizing the 2013 City of Vision Study Tour.

"City of Short Distances"

- Not only retaining and enhancing the beauty, walkability, mixed use and vibrancy of its historic city, Freiburg planning over the last 40 years has emphasized biking, walking and public transit, traffic calming, and mixed-use human-scale development to create a "city of short distances". Numerous sustainability measures such as regional heating, recycling, and low-energy buildings have been implemented. Regional planning has focused development within city boundaries, and thus prevented sprawl. Historic castles, villages and towns have been protected. A strong emphasis is placed by Germany, Switzerland and France on ensuring ecological standards and protecting the diversity of vineyards, orchards and farms that produce the region's renowned specialty items.

"City Carpet"

- Freiburg is a delightful city to study for all those concerned with city livability. Cities around the world have much to learn from details such as Freiburg's "city carpet" (paving

throughout the pedestrian zone); bicycle network planning and bike services; public transit design and linking policies; principles for developing new urban neighborhoods; traffic calming details (Wohnstrasse, Verkehrsberuhigung), etc.

Appropriate Architecture

- In 1944 most of Freiburg was destroyed in an air raid. Only a few buildings remained. The cathedral, fortunately, was untouched, surrounded by rubble. After the war, the decision was made to rebuild the city on the medieval street plan, maintaining the irregular narrow streets, and to reconstruct buildings as far as possible to retain the medieval scale and feeling of the old city. In this way, Freiburg's decision was atypical for European cities, most of which chose to follow modern planning concepts, widening and straightening streets to accommodate cars.

- Only a few of the most significant historic buildings, such as the city hall (Rathaus) and grain storehouse were rebuilt as they had been before. All others were built on the original building lines and within the original building envelope, not as replicas, but as modern buildings in the spirit of the medieval city. Some buildings constructed in 1952 preserved the city's historic character so well that they are already placed under preservation law.

- The economic boom of the '60s, which changed the face of so many German cities with high-rise buildings, the attempts to preserve the historic feeling of the city gave way to an attitude of modernism. Some very inappropriate, glass and steel department stores, and parking garages were built at this time, with flat roofs and horizontal strip windows.

- City regulations were able to prevent high-rise buildings in the old city, and to prevent the use of steel, glass and concrete facades for most large department stores. Gradually, the city was able to compromise with architects to obtain facades that reflected the historic structure of the city by breaking a large façade into smaller units, adding window apertures in the wall surface, and a pitched roof.

- In the '70s design guidelines were drawn up. By and large, these were accepted. New designs were asked to conform to the traditional building type: the roof should be as steeply pitched as the original building on that site, with roof ridge parallel to the street; the eaves should be very clearly defined, as they were in the medieval buildings; windows should be apertures within the solid wall surface, and they should be openable. Dormer windows were permitted to utilize the considerable space beneath the roof. Greater flexibility was permitted in the design of rear facades, in order to permit balconies and roof terraces.

Urban Renewal Prototype

- At the end of the '60s a major program was initiated to maintain and increase the residential population in the inner city. The area of Konviktstrasse is particularly interesting. The street has been largely rebuilt, but the scale and character of the medieval street still remains. A prototype of appropriate urban renewal was carried out. The city did not permit amalgamation of the small building lots, but bought the properties and sold each lot to a different individual, with the injunction that they must build and live in the buildings themselves, and that each owner must employ a different architect.

- It was assumed that these houses would not be built exactly as before but that they should be clearly new buildings, varied in style, but following the principles of Freiburg's traditional architecture. The various architectural designs had to be considerate of their neighboring buildings. Each architect was required to submit drawings and a model, and these were compiled to see how the ensemble would look.

- The street became such a popular place to live that by the end of the '70s architects were competing with each other to design a unique facade. Nevertheless, the designs balance each other, and the ensemble is very pleasing.

Residential Incorporated into Parking Structures

- Parking was one of the chief problems for residents and business people. The area behind Konviktstrasse, which had previously been the site of the city wall and some additional housing, was therefore used to provide parking. The city constructed a three story garage with six hundred spaces. On top of the stepped roof of the garage the city identified twenty-two sites for townhouses, each with its own garden area. Each of these sites was also sold to different individuals, who were also required to hire different architects to design appropriate dwellings following the traditional principles. From Konviktstrasse, one would not guess that a parking garage exists; the houses appear to have been built on the slopes of the Schlossberg hill. Indeed, from these row houses one steps across a bridge and is directly on a trail that connects through the Schlossberg woods to the rest of the Black Forest.

Development of “Pedestrian Zones”

- Freiburg was one of the first German cities to close the city center to traffic. As early as 1949 cars were banned from five small side streets off Kaiser Joseph Strasse, the main shopping street, but it was not until l971, after the construction of a ring road around the city center, that the city undertook a very careful evaluation of goals and priorities for the future of the city.

- In Freiburg, as in many other cities in the '60s, families were moving out to the suburbs, shopping centers were being developed around the periphery, and traffic in the city center had become a major problem, threatening the quality of life for those living in, and visiting the city center.

- It was decided that "the attempt should, and had to be made to put a stop to the impending depopulation of the city center". It was agreed that the city must be livable for the community. Residential accommodations, and workshops had to be increased. The historic and cultural significance of the city had to be restored. These goals included improvements in Freiburg's market function, and streetscape.

- In order to make the city center the unquestionable focus of economic and business life in the region, and to improve the quality of life for everyone who lived, worked, visited or enjoyed themselves in the city, it was decided that the center should become a traffic free zone. The pedestrian zone, the Freiburgers decided, should encourage promenading and social life. It should provide for meetings, and exchanges of opinions and ideas. That is the life of the city; for that, the heart of the city must offer ideal settings.

- This important definition of goals and priorities prepared the way for the City Council's decision in 1972 to close Kaiser Joseph Strasse to traffic. Until then, this street was used as the major north-south traffic route and carried 22,000 vehicles per day. Finally, in 1973, after much preparatory redesign and repaving, all the main streets and almost all the side streets in the city center were closed to traffic.

- The pedestrianized city center was intended in 1972 to be an experiment. Most citizens were always in favor of the idea, but some business groups opposed it. It was not until 1986 that the "experiment" concluded, when a consensus in favor of the pedestrian zone had clearly emerged.

- The streets were repaved, for the most part, with natural stone. Trees, fountains, seats, lamps and art objects were installed. Commercial elements, such as showcases and kiosks, which were common in pedestrian zones created in other cities during the '60s, were not wanted here.

- The city paid very special attention to the repaving of the streets and squares. Kerbs and asphalt were removed from all streets, and natural stone paving - reddish quartzite, black basalt, granite, red porphyry, and pebbles from the river Rhein - were used almost without exception in the medieval city center.

- Indeed, the floor of the city has been treated as the city's "carpet". It is a work of art, and exhibits fine craftsmanship. Geometric and flower designs, historic, cultural and business symbols, executed by traditional artisans working with the different colored stones, pebbles and mosaics emphasize the unique character of each street, stimulate a sense of history, and prompt fantasy and imagination.

- On the square outside the town hall are pebble mosaics representing the emblems of Freiburg's sister cities, Besançon, France; Guildford, United Kingdom; Innsbruck, Austria; Padua, Italy; Madison, Wisconsin; Lwow, Ukraine; and Matsuyama, Japan. Institutions, commercial buildings and churches are invited to sponsor a pebble mosaic in the pavement at their entrance; a bakery may be identified by a pretzel, a pharmacy by a pestle and mortar, a cafe by a cup and saucer, a tailor by a pair of scissors. In this way, the business reaches out into the street and extends its jurisdiction into what, in other cities, is a no-man's land. The pavement becomes personalized.

- These pavement designs demonstrate that the Freiburgers value artistic craftsmanship, and that imagination, patience, humor, and the ability to create something that will last for generations are qualities that are highly valued. The sense of civic pride and responsibility are very strong in Freiburg.

- During the pedestrianization process, Freiburg took the opportunity to reopen the "Bächle", the little streams that run off the mountains through the streets of the old city. These streams had provided the drainage system dating from the fourteenth century, but had been covered up to make the streets accessible for vehicles.

- On hot days these tiny rivulets are very refreshing: many people paddle to cool hot feet; and children find the swift flowing water irresistible for all kinds of games. The pedestrian zone has proved immensely popular, and economically very healthy. Indeed, the pedestrian streets are so successful that some shopkeepers and residents on streets with traffic also demand to become traffic free.

Transportation Planning

- Closing the center of the city to private vehicles made public transportation by tramway and bus much more attractive. The tramway system runs through the main shopping streets and, without the delays caused by private vehicles, the trams are able to run much more efficiently. As a result of pedestrianization, therefore, more people began using public transportation because it could take them quickly and comfortably into, and across the city center. As a result of this increased use, it became possible to further improve the service and extend the routes.

- In Freiburg, transportation planning aims to reduce motorized traffic by means of integrating urban development and transportation planning to achieve a “city of short distances”. The goal is to reduce automobile traffic by increasing use of the more healthy and sustainable modes of transportation, walking, biking and public transit. While it is

recognized that use of the automobile is necessary in some circumstances, it is carefully regulated in an environmentally and urban-friendly manner.

- Transportation planners make use of five mechanisms to encourage healthy and sustainable transportation modes: 1. Extension of the public transportation network; 2. Traffic restraint; 3. Channeling individual motorized vehicle traffic; 4. Parking space management; and 5. Promotion of cycling.

- Early plans had proposed moving public transportation into tunnels beneath the pedestrian streets. These plans were abandoned for cost reasons, and it is now thought that the visibility of trams and busses on the main street also keeps public transportation more attractive. They are relatively noiseless, and limited to a maximum speed of 25 kilometers per hour.

<u>"Urban Environmental Protection Ticket" ("Green Ticket")</u>

- In 1984 a new philosophy for local public transportation was developed. An "urban environmental protection ticket" was introduced. This was a monthly season ticket, usable on all busses and trams, and was offered at 25% discount to everyone. When the number of passengers rose it became possible for new streetcar lines to be opened and new equipment to be installed.

<u>Street Cars and Light Rail Service</u>

- In 2012, the streetcar (Strassenbahn) extends 19 miles (30 km) from Kaiser Joseph Strasse at the heart of the pedestrian zone to eight different destinations in surrounding neighborhoods. They provide a regular service every 7.5 minutes at rush hours and carry 70% of public transit users. An additional four new lines are proposed to provide greater interconnectivity. The regional light rail service runs every 30 minutes from the city center to surrounding towns. This connects to the national train system and bus system at the main train station.

Regionalizing Public Transportation

- Freiburg's public transportation company joined with all the public transportation companies in the region to form a single transportation company. It is now possible to purchase a monthly ticket for unlimited use on all regional busses and trams, including trains and busses of the national system "Bundesbahn". This has made it as easy to travel by public transportation to the surrounding mountains and lakes of the Black Forest as it is to go shopping. Fifty-six bus routes and eight railway lines are included in the system. The ticket is transferable, and can be used by several passengers simultaneously. This ticket is called the "Regional environmental protection ticket" or the "Green ticket", and is intended to encourage as many people as possible to leave the car at home and travel by the much more ecological public transportation system.

Bicycle Restrictions

- It was decided in Freiburg that bicycles would be too disruptive to pedestrians within the main pedestrian areas. Riding bicycles, therefore, is not allowed on Kaiser Joseph Strasse, Münsterplatz, Augustinerplatz, or Rathausplatz. Bicyclists are permitted to ride on some pedestrian streets, but not others, and sometimes they are only permitted in one direction.

Bike Parking

- Within the pedestrian zone, there are 50 bike parking lots. Bicycle parking is provided at primary, elementary and high schools as well as at all university buildings. Safe bike parking places are provided in the surrounding neighborhoods at streetcar, local railway and bus stops, often with protective roofs. At the main railway station, a large three story bicycle station has been constructed, providing bike parking, maintenance and rental services. Throughout Freiburg, it was estimated in 2009 that 60,000 bike parking spaces were available.

Separated Bike Paths

- An extensive network (450 kilometers) of bicycle paths has been created. At first, paths to surrounding villages were intended for both bicyclists and pedestrians. It became clear that the speed of bicycles made these paths unsafe for pedestrians, to now, wherever possible, separate paths have been created for both. These routes run along the banks of the river Dreisam, around fields, through woods, and beside roads. Within the city, separate bike paths are often created next to sidewalks, protected from traffic by planting strips where space allows.

Bike Boxes at Intersections / Cycle Streets

- Bicycle lanes have also been created on the road, clearly marked with solid white lines and bike symbols. At intersections, special care is taken to bring bicyclists to the front in “bike boxes”, permitting them to cross before motorized vehicles. Occasionally, in order to complete and connect the bicycle network, quiet streets have been designated as “Cycle Streets” the give priority to bicyclists.

Parking Pricing and Residential Parking Permits

- Use of the automobile has been made less attractive by parking space management. Within the center city, parking garages cost almost $3 per hour (Euros 2.20). In immediately adjacent neighborhoods, parking costs $2 per house (Euros 1.60). Neighborhoods where residents are required to obtain parking permits are being extended.

"Play Streets or Living Streets"

- Many streets have been traffic calmed by removing some parking areas to make way for trees and plants, seating areas, and outdoor restaurants. Throughout most of the city, a 30 kilometer per hour speed limit is in place, and many short streets and small neighborhoods have been designated as "Play Streets" or "Living Streets" (Wohnstrasse). In these streets, speed limit is reduced to walking speed, and only residents or delivery vehicles are permitted to park.

Farmers' Markets

- Freiburg has one of the most extensive and successful farmers' markets in Europe, which takes place on the large Münsterplatz that encircles the cathedral. At least half of the market, on the north side of the cathedral, consists of local farmers and gardeners selling their own produce.

- While the market takes place every morning from 7:00 a.m. until 1:00 p.m., Saturday is the busiest day, when the square is filled to overflowing. Around the edge of the Münsterplatz are many outdoor cafes, inns and restaurants which, from mid-morning on, provide light refreshment and traditional fare. By noon during fine weather every table and chair is occupied. Many have been shopping; others come because this is the liveliest place to meet friends.

- The market has a very festive spirit, with its colorful umbrellas and overflowing baskets of fruit, flowers and vegetables. For the Freiburg citizens, this is an important weekly social ritual, an opportunity not only to buy the best and freshest produce of the region, but more significantly, to meet friends and acquaintances. Many people, including city officials, business people, university professors and students can regularly be found at the Saturday market. This farmers' market plays a very important role in Freiburg's social life.

Festivals and Street Entertainers

- Celebration and festivity are cherished in Freiburg. Hardly a week goes by without some festival in the center of town or in one of the neighborhoods. The annual carnival celebration, "Fasnet" revives a centuries old tradition of masked and costumed performances in the streets. Thirty-three fools' guilds take part in the celebrations, and there is a "Hemdglunker" procession, which leads to the storming of city hall.

- Many new festivals were introduced during the '70s: in 1973 a Christmas market was inaugurated on the Rathausplatz in front of city hall; in 1970 the wine growers' cooperative societies began a festival called "Freiburg Wine Days" for the last weekend in June on the Münsterplatz; in mid-August there are nine days of Wine Tasting, "Weinkost" of all the wines grown within the boundaries of Freiburg. In addition there is an Old City Festival, a Beer Festival, the "Oberlinden Hock", and various neighborhood festivals.

- Street entertainers are welcomed in Freiburg. Saturday afternoons are especially lively, when music of all kinds, from medieval and baroque music, classical Spanish guitar and Indian sitar music, to folk music from Ireland, America and Peru, jazz and rock music, as well as clowns, acrobats, and other performers fill the streets and squares of the old city.

Renewable Energy, Solar Industry, Photo-voltaics, and Water Quality

- Spurred by research at the University, and a population eager to put into practice principles of ecology and sustainability, Freiburg has become a leader in innovative sustainable energy, with solar, wind and hydro-power industries, co-generation and district energy systems.

- Water quality has long been a focus of planning, with extensive use of permeable ground surfaces (rather than asphalt), bioswales, and green roofs. To encourage permeable ground surfaces, property owners are charged a stormwater fee according to the percentage of their land that is permeable.

- The two new urban neighborhoods, Rieselfeld and Vauban have been built using low energy construction and passive and active solar design methods, as well as a strong community participation process in the planning.

New Urban Neighborhood Design Principles

- The population of Freiburg increased rapidly in the '90s, largely due to the migration from former East German States. Freiburg's response was to plan a complete new city quarter, called Rieselfeld, for a population of 12,000 on seventy-eight hectares at

Freiburg's western edge. The city wanted to ensure that this new neighborhood would be designed on the most advanced ecological principles.

- The land had originally been used as the municipal sewage farm, but was closed in 1980 when the sewage system was connected to a regional treatment system. At that time, the intention was to protect the landscape and ecology of the area. However, the need for housing was so great that the city decided to use one quarter of the area for the new neighborhood, and to maintain the rest as a nature conservancy area.

- The city wanted to avoid the social problems often associated with large scale housing developments, and to ensure that they did not repeat the planning mistakes made in the adjacent district of Weingarten. Here, modern planning principles had been used in the construction of a predominantly social housing district of high-rise apartment blocks. The combination of poor planning principles, absence of urban texture, and ghettoization of lower income families had created a neighborhood with distinct social problems.

- The city paid much attention to defining equitable and sustainable planning principles to form the basis for Rieselfeld. They invited experts in planning, social sciences, transportation, ecological planning, energy, housing, and other fields to advise them and to help shape the guidelines for the conceptual plan competition.

<u>Seven principles were considered of prime importance:</u>

- **Human Scale**: In its architecture, and urban space design, the new neighborhood should be built to a human scale. There should be a clear differentiation between public, semi-public and private spaces. Public spaces should be defined by continuous urban fabric - shop/houses or terraced houses - along the street to a maximum of five or six stories.
- **Identity:** Since the social stability of a district depends on residents identifying with their neighborhood, the neighborhood must have a good image, with its own unique and consistent character.

- **Social structure:** From the beginning the neighborhood must have a balanced social structure. This means that while social housing is an important element, it must be balanced by market rate housing.

- **Infrastructure:** For the neighborhood to have its own identity it must contain all the essential infrastructure. Shops, schools, kindergarten, health care and senior services, work places, restaurants, churches, sports and other facilities must all be included.

- **Transportation:** It is of the highest priority to encourage use of public transportation; the new district must be connected to the city center and other parts of Freiburg by tramway and bus.

- **Ecology:** Ecological principles must influence architectural design and urban design. Buildings should make use of passive solar energy, solar collectors and photo-voltaics.

- **Community participation:** It is important to develop a process of community participation in the planning and building designs for the new neighborhood.

District Planning

- In 1992 a competition for the conceptual plan was held. The first prize winner, a planning firm from Freiburg, worked with the City of Freiburg to further refine the plan to reflect as closely as possible the city's planning principles.

- The street layout is roughly orthogonal with the main street carrying the Strassenbahn connection to the city center running down the middle of the site. The main street contains most of the commercial activities, with a large supermarket at either end, and a diversity of smaller shops, cafes and restaurants between them. It has wide sidewalks, separate bike lanes, vehicle lanes, and the Strassenbahn running down the middle along a green sward.

- While the emphasis is placed on public transit, walking and biking, the automobile has not been banned from Rieselfeld. Almost all apartment buildings and condos have underground parking; row houses and townhouses have parking in adjacent alleys.

- "Wohnstrasse" abound throughout the area. In these streets, traffic can go no faster than a pedestrian. There are no sidewalks because the whole width of the street must be shared by playing children, adults socializing, bikes and cars. This requires all users to be mindful of others in the space. In addition, there are numerous lanes, paths and trails that are for pedestrians and bikes only.

- The urban fabric consists primarily of a classical block structure reminiscent of some of Freiburg's best loved 19th century neighborhoods (though in a modern style of architecture), and two to four-story town houses. Rieselfeld was the first district in Germany to require stringent energy saving measures for housing construction in the entire district, and builders were encouraged to use passive solar design features. Across the whole neighborhood there is a minimum amount of sealed paving: rainwater seepage is facilitated through natural ground surfaces and a rainwater conservation system.

Green Streets and Green Spaces

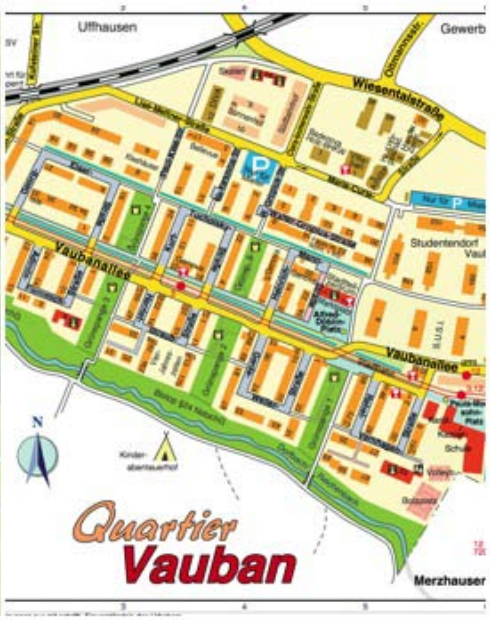
- Much attention was paid to making the streets and outdoor natural areas safe for children to explore and range on their own, and hospitable for children's play. Green streets, and green spaces within and between the blocks are filled with natural playgrounds, small streams, ponds, community gardens and wild areas. Nature reigns supreme.

- The city established a municipal project management team, headed by Klaus Siegl, under the direction of the Erster Bürgermeister Dr. Sven von Ungern-Sternberg to manage the whole development. Since the city owned the land, they were able to sell small parcels to developers, building contractors and individual owners and thereby finance the provision of services.

- Major housing construction was not undertaken until the necessary infrastructure was in place. This meant that the tramway was in place, a kindergarten and shops, including a grocery, were completed to coincide with when the first residents moved in. Major community resources at the center of the development now include a grammar school, a media center, and a multi-cultural church that provides many meeting rooms for diverse religious observances. The development broke ground in December 1994. The neighborhood was built in sections and finally completed in July 2010.

Green Neighborhoods: Vauban

- In 1992, the French Vauban military barracks were decommissioned. The city of Freiburg bought the land and decided to develop it as a high density neighborhood for a population of 5,000. The land was heavily wooded, and the idea developed to create a "green" neighborhood – a place where residents could live in a park, not in a parking lot. The barracks were less than 3 kilometers from the city center, with a good bus connection and easily accessible by bike. As with Rieselfeld, it was also decided to connect Vauban to the city center with a new tram line.



- The Vauban lands offered several advantages for transformation into a new type of garden suburb, but at a higher density. It was adjacent to existing city services and many offices and job locations were easily accessible on foot or by bike. On the south side, it was close to hills and woods attractive for recreation. It was therefore decided to build a new neighborhood at the greatest possible density compatible with ecological and social sustainability.

- It was felt that a high standard of livability would only be achieved in such a dense neighborhood if the streets and public spaces were relieved of the burden of automobile traffic. An important criteria, therefore, was to remove the automobile from the neighborhood as much as possible.

- Planning for pedestrians and bicyclists took first priority. This meant that shops, services and work places had to be located within walking or biking distance. Bus lines stopped at the entrance to Vauban, and a tramway was constructed along the neighborhood's main street.

<u>"Promotion of a "Car-Free" Life-Style"</u>

- The comfort and safety of children, handicapped persons and elders was prioritized over the comfort of the car driver. Residents were protected from the noise and air pollution caused by cars by the provision of large parking structures at the entrances to Vauban. These ensure parking is available within 300 meters of every home. While there are a small number of parking spaces available throughout the neighborhood, it was emphasized that this neighborhood would be ideal for those who wished to live without a car, or who did not need to have their car parked inside, or in front of their home. In Freiburg, 35 – 40% of households do not own a car. Many of these have consciously chosen a car-free life style, so it was felt that the time was right to create a neighborhood that was, as far as possible, car-free. Delivery and emergency vehicles, of course, have access to every dwelling.

Advantages of a "Car-Free Neighborhood"

- A car-free neighborhood was also considered to offer ecological and economic advantages:
    - residents would walk on the streets more, thus get more exercise and be healthier;
    - without cars, the air would be cleaner, and thus healthier;
    - residents would be more likely to get to see each other, talk, and get to know each other in the public realm;
    - they would develop a stronger connection to their neighborhood and to the community.
    - It was considered especially important to ensure that the street adjacent to the elementary school and Kindergarten should have minimal car traffic.
    - By not providing underground parking for every dwelling, construction costs would also be lower, reducing costs for owners and renters.

- It was planned that east of the main street, Merzhauserstrasse, approximately 20% of residents would have parking available near their homes, either underground or in parking structures. West of Merzhauserstrasse, the area is divided into four quadrants, each of which would provide parking for approximately 25% of residents within the quadrant. Other residents would be able to park in the parking structures at the periphery of Vauban.

- Since the neighborhood was constructed in phases, planners were able to test out their estimates as to the number of parking places desired near the homes, and adjust their planning as they progressed.

- The land was divided into comparatively small parcels, enabling individuals to build for themselves and own their own home. This was a deliberate effort to encourage diversity of architectural forms that would reflect the diversity of the population.

- On Merzhauserstrasse a mixed-use solar building was constructed, with shops at street level and south-facing low energy apartments above. Row houses behind this building are constructed on principles of passive solar design. Active solar panels on the roof allow these houses to produce more energy than they need, which is traded back to the energy company.

- This research incorporates references from: Freiburg-im-Breisgau, Germany, in Livable Cities Observed (1995) by Suzanne H. Crowhurst Lennard and Henry L. Lennard
- Sven von Ungern-Sternberg. Freiburg-Rieselfeld, in Making Cities Livable: Wege zur menschlichen Stadt. (1997) Suzanne H. Crowhurst Lennard, Sven von Ungern-Sternberg and Henry L. Lennard (Editors)
- Sven von Ungern-Sternberg and Volker Jeschek, Von der Kaserne zur Gartenstadt Vauban. in Making Cities Livable: Wege zur menschlichen Stadt. (1997) Suzanne H. Crowhurst Lennard, Sven von Ungern-Sternberg and Henry L. Lennard (Editors)
- Hans Billinger, Freiburg, Vauban-Geländer, in Making Cities Livable: Wege zur menschlichen Stadt. (1997) Suzanne H. Crowhurst Lennard, Sven von Ungern-Sternberg and Henry L. Lennard (Editors)

References

1. Badenova. 2009. *Ökologie- und Nachhaltigkeitsbericht*. Website
2. Berg, Rick. 2009. Madison conservative visits the car-light Vauban neighborhood in Freiburg. *The Daily Page*, (Madison, Wisconsin), July 24. Website
3. Breyer, Franziska. 2009. *Freiburg Energy Policy: Approaches to Sustainability*. Presentation at the Local Renewables Conference, Freiburg, April 28. Website
4. Brunsig, Jürgen, Nadine Möller, and Jürgen Wixforth. n.d. Freiburg-Rieselfeld: urban expansion and public transport. Website
5. C40 Cities Climate Leadership Group. n.d. *Buildings – Freiburg, Germany*. Website
6. C40 Cities Climate Leadership Group. n.d. *Transport – Freiburg, Germany*. Website
7. City of Freiburg. 2010. *Dächer des städtischen Betriebshofs werden zur Stromproduktion genutzt*. Website
8. City of Freiburg. 2010. *Ziel verfehlt mit Ansage*. Website
9. City of Freiburg. n.d. *Freiburg Green City: Approaches to Sustainability*. Website
10. Dauncey, Guy. 2003. *Freiburg Solar City*. Website
11. Energie-Cites. 1999. *Thermal Solar Energy – Freiburg (Germany)*. Website
12. European Academy of the Urban Environment. n.d. *Freiburg: Low-energy Housing Construction Project.* Website
13. European Academy of the Urban Environment. 2001. *Freiburg: Public transport policy as a key element of traffic displacement*. Website
14. Hildebrandt, Andreas. 2008. *Traffic planning and Public Transport in Freiburg*. Presentation at the Tsukuba 3E Forum, May 31, on behalf of VAG Freiburg. Website
15. Huber-Erler, Ralf, Sebastian Hofherr, and Tomas Pickel. 2008. *Verkehrsentwicklungsplan VEP 2020, Stadt Freiburg im Breisgau, Endbericht Mai 2008*. City of Freiburg, Garten- und Tiefbauamt. Website
16. Inspirenation. 2008. *Sustainable Buildings, Transport and Energy Study Tour*. Website
17. Look, Marie. 2009. Trash Planet: Germany. Website
18. Mayrhofer, Max. *Creating reduced traffic areas in Freiburg/ Germany*. Website
19. Purvis, Andrew. 2008. Is this the greenest city in the world? *The Guardian* (UK), March 23. Website
20. Salomon, Dieter. 2009. *Freiburg Green City: Approaches to Sustainability*. Presentation to European Green Capital Award, Brussels, Dec. 1. Website
21. Schick, Peter. n.d. *Freiburg – A Smarter Travel Town?* Website

22. Sperling, Carsten. 2002. *Sustainable Urban District Freiburg-Vauban*. Website
23. UNEP Climate Neutral Network. n.d. *Freiburg*. Website
24. Wörner, Dieter. n.d. *Sustainable energy solutions for cities – case of Freiburg*. Website
25. Zurbonsen, Karl-Heinz. 2010. “Green City” is nicht grün genug. *Stuttgarter Nachrichten*, Oct. 11. Website

Other Sources:

- http://www.ecotippingpoints.org/our-stories/indepth/germany-freiburg-sustainability-transportation-energy-green-economy.html

- http://www.livablecities.org/articles/freiburg-city-vision

Conclusion and Next Steps

This initial research into best practices organized by the AMPS "Focus Areas" is intended to provide a range of options for staff, City officials and community stakeholders to consider as the first step in a process of refining and prioritizing the key action items that will be fleshed out in Phase Two of the Access Management and Parking Strategy (AMPS) project.

These preliminary best practices will be summarized onto boards by focus area and presented to the community through a series of public meetings, board presentations and other outreach strategies. An interactive exercise will allow all stakeholders to provide feedback and recommendations on prioritization. We will also be asking for feedback on "What's Missing".

A large number of industry best practices were documented that the City of Boulder has already adopted or pioneered. These "already implemented" best practices will be documented for informational purposes at the public meetings.

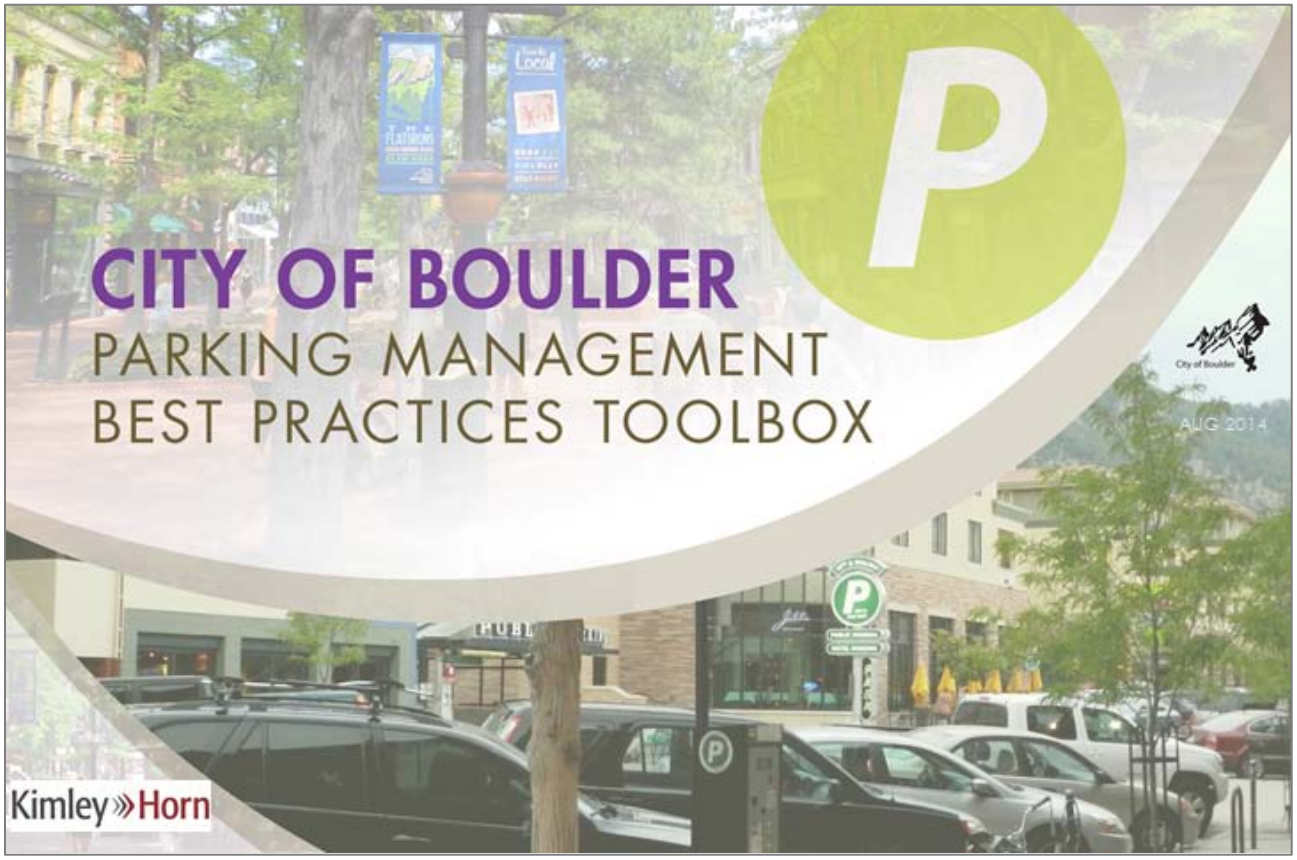
As the list of prioritized strategies is finalized, specific "PhaseTwo" project work plans will be drafted for City staff review. These work plans will define the process for the remainder of the project.

APPENDICES

Appendix #1: Parking Management and Design Best Practices

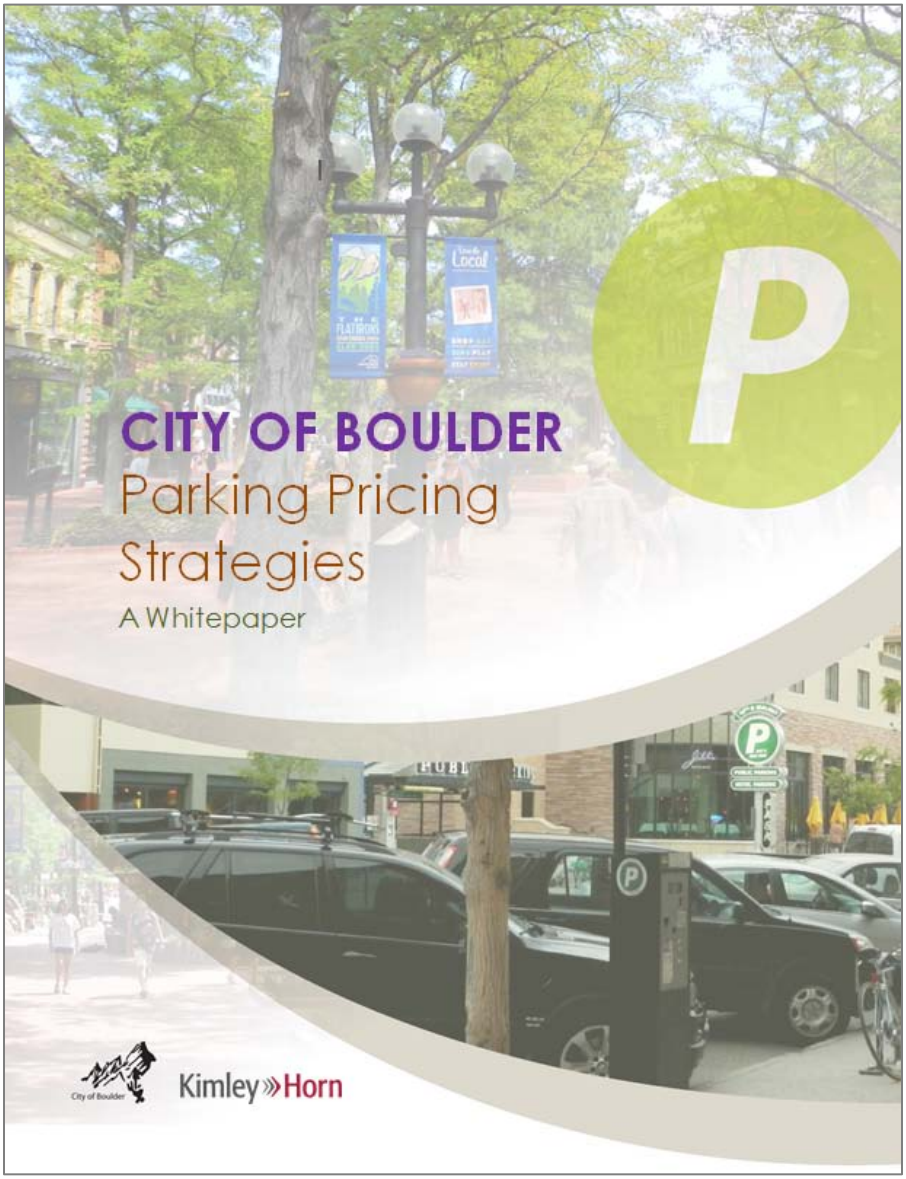
Appendix # 2: Parking Pricing Strategies Whitepaper

Appendix # 1: Parking Management Best Practices



This supplemental document, available on the City's AMPS webpage, contains over 300 additional parking management best practices, many of which the Boulder program has already adopted or even pioneered in some cases.

Appendix # 2: Parking Pricing Strategies Whitepaper



This draft document provides detailed information about a number of performance-based parking pricing project that are being piloted around the country. This work is in the process of being updated based on staff comments.