



TO: Members of Council
FROM: Danielle Sears, City Clerk's Office
DATE: June 16, 2015
SUBJECT: Information Packet

1. CALL UPS

- A. Concept Plan Review 2465 48th Ct (LUR2015-00026)

2. INFORMATION ITEMS

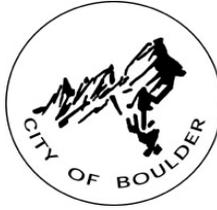
- A. Broadway and Yarmouth Intersection Safety Concerns
- B. Requested Background Information Regarding Occupational Privilege Tax (OPT) aka Head Tax for Potential Ballot Item
- C. Draft Neighborhood Partnership Grant Program
- D. Update on the Transportation Report on Progress
- E. Update on Regional Transportation District Items

3. BOARDS AND COMMISSIONS

- A. Beverage Licensing Authority – April 27, 2015
- B. Landmark's Board—April 1, 2015
- C. Landmark's Board—May 6, 2015
- D. Landmark's Board—June 3, 2015
- E. Planning Board—May 7, 2015
- F. Parks and Recreation Advisory Board—April 27, 2015
- G. Transportation Advisory Board—February 23, 2015
- H. Water Resource Advisory Board—February 23, 2015
- I. Water Resource Advisory Board—March 16, 2015

4. DECLARATIONS

None.



**INFORMATION PACKET
MEMORANDUM**

To: Members of City Council

From: Jane S. Brautigam, City Manager
David Driskell, Executive Director of Community Planning + Sustainability
Susan Richstone, Deputy Director of Community Planning + Sustainability
Charles Ferro, Development Review Manager
Sloane Walbert, Planner I

Date: June 8, 2015

Subject: Call-Up Item: Concept Plan Review 2465 48th Court (LUR2015-00026)

On June 4, 2015, the Planning Board reviewed and commented on a Concept Plan for an expanded and improved automobile sales and service center on an approximately six-acre site at 2465 48th Court. The dealership (Larry H. Miller Toyota) proposes to remodel and expand their operations to enhance the building character and increase customer service and sales potential in order to meet corporate requirements for Toyota sales. Specifically, the proposal is to expand the existing two-story building by 28,579 square feet on the north (rear) side of the building to provide a new showroom, customer service reception area, indoor vehicle delivery, service bays and car wash. The building addition would occupy the location of existing surface vehicle storage/parking spaces.. The project also includes relocating the existing access on 47th Street to alleviate cueing issues, a five-foot wide detached sidewalk on 47th Street, and building façade improvements. Outdoor lighting and landscaping will also be upgraded to be compliant with the city's code

City Council may vote to call-up the Concept Plan to review and discuss within 30 days of the Planning Board hearing. The call up period concludes on **July 6, 2015** (the end of the 30-day call up period falls on a weekend and so is extended to the following Monday). There is one City Council meetings within this time period for call-up consideration, on June 16, 2015. The staff memorandum to Planning Board, minutes, meeting audio, and other related background materials are on the city website for Planning Board, available [here](#) (Follow the links: 2015 → 06 JUN → 06.04.2015 PB Packet). The draft minutes from the Planning Board hearing are provided in **Attachment A** and the Concept Plan submittal package is provided in **Attachment B**.

Staff received no public comment on the application and there were no neighborhood comments at the Planning Board hearing. Overall, the board found the proposal to be consistent with the policies of the Boulder Valley Comprehensive Plan (BVCP). The Board made some recommendations on site and building improvements and providing connections to the broader bicycle network. In particular, the Board recommended that the applicant focus on providing a clear path for bicyclists to enter the site

from Pearl Parkway and 47th Street and to provide connections for bicyclists to nearby multi-use paths and Boulder Junction. The Board had an interest in higher quality design for the building façade, innovative stormwater management design as well as for maximum building efficiency. Also, there was a recommendation for the use of visible solar panels as a design feature to power the proposed parking lot lighting. The Board recommended that the applicant include alternative fueling stations and provide loaner bikes as part of the Transportation Demand Management plan.

Consistent with recently amended land use code section 9-2-13(a)(2), B.R.C. 1981 City Council has the opportunity to call up the application to review and comment on the concept plan within a 30-day call up period which expires on July 6, 2015.

ATTACHMENTS

- A. Draft June 4, 2015 Planning Board Minutes
- B. Concept Plan Submittal

**CITY OF BOULDER
PLANNING BOARD ACTION MINUTES
June 4, 2015
1777 Broadway, Council Chambers**

A permanent set of these minutes and a tape recording (maintained for a period of seven years) are retained in Central Records (telephone: 303-441-3043). Minutes and streaming audio are also available on the web at: <http://www.bouldercolorado.gov/>

PLANNING BOARD MEMBERS PRESENT:

Aaron Brockett, Chair
Bryan Bowen
John Putnam
John Gerstle
Leonard May
Liz Payton

PLANNING BOARD MEMBERS ABSENT:

Crystal Gray

STAFF PRESENT:

Susan Richstone, Deputy Director of CP&S
Charles Ferro, Development Review Manager for CP&S
Hella Pannewig, Assistant City Attorney
Susan Meissner, Administrative Assistant III
Sloane Walbert- Planner I
Karl Guiler- Planner II
David Thompson, Transportation Engineer
Lesli Ellis, Comprehensive Planning Manager for CP&S
Jean Gatza, Community Sustainability Coordinator
Courtland Hyser, Senior Planner
Matt Chasansky, Arts and Cultural Services Manager

Public Hearing Item 5A

- A.** Public hearing and Concept Plan Review of a proposal for the expansion and renovation of an existing automobile sales and service facility at 2465 48th Court (Larry H. Miller Toyota), Case No. LUR2015-00026. Proposal includes various site improvements and an approximately 28,500 square foot addition to the north (rear) side of the building, which requires merging the two existing parcels.

Applicant: Alexandra Schuchter, John Mahoney Architects
Property Owner: Miller Family Real Estate LLC

Staff Presentation:

- C. Ferro** introduced the item.
S. Walbert presented the item to the board.

Board Questions:

S. Walbert answered questions from the board.

Applicant Presentation and Questions:

Alexandra Schuchter, the owners representative, presented the item to the board.

Public Hearing:

No one spoke.

Board Comments:

BVCP Plan

- Board members agreed that the proposal generally complies with the BVCP.

Architecture and Site Design

- The board would prefer to see improved architecture, especially on the southwest corner, if possible. The current design is acceptable but a bit generic.
- The board did not have strong feelings about the materials used in the design of the building; they did not feel that it would be permanent.
- Landscaping upgrades will be triggered by the proposal. Integrate storm water swales into the landscape design. Consider trees and plant choices that are native to the area and that could act as rain gardens. They discouraged the use of sod.
- Include and make conspicuous alternate forms of energy generation. Consider incorporating energy features into the building, carport and site design.
- Include an electric vehicle charging station.

Transportation and circulation

- Improve the circulation for bikes and pedestrians. Provide a designated crossing from the sidewalk on 47th Street to the main building; give pedestrians and bikes precedence over cars.
- Include a bike sharing program such as B-Cycle and make design accommodations for Lift, Uber or other alternative modes of transportation.
- Talk with Go Boulder and Community Cycles to determine the best ways to connect the site with existing bike networks and to Boulder Junction.
- Provide bike racks and other infrastructure to encourage employees to bike to work.
- Though outside of the applicant's purview, the board would like to see improved sidewalk connectivity at Pearl Parkway and 47th Street. Consider widening the sidewalk along 47th Street if possible and creating a pedestrian access point mid-block along Pearl Parkway.
- The TDM plan will be an important tool to work out larger transportation issues. Include bike loans or shared bikes in the plan.

Miller Family Real Estate LLC
Concept Plan Review Statement

The Applicant, Miller Family Real Estate LLC, is the owner of the Miller Toyota sales and service center located at 2465 48th Court in Boulder, Colorado. The existing center is located on a 6.087 acre parcel (Lot 1 on the Site Plan), which includes an approximately 64,654 square foot building and 6 acres of surface car storage/parking. The existing building was constructed in 1986. Access to the site is from 47th Street. The site is zoned IS-2.

The Applicant desires to redevelop the site into an expanded and upgraded sales and service center, to be compliant with Toyota's requirements for car sales (in particular the Prius model, which is a very popular model in Boulder given its low-emissions and high-fuel-economy attributes). In addition, the upgraded center will be consistent with the neighboring redevelopment projects along Pearl Parkway. As the Boulder Junction Transit Village continues to expand to the west of this site, the Pearl Parkway corridor is emerging from the industrial look which has characterized this area for the past several decades.

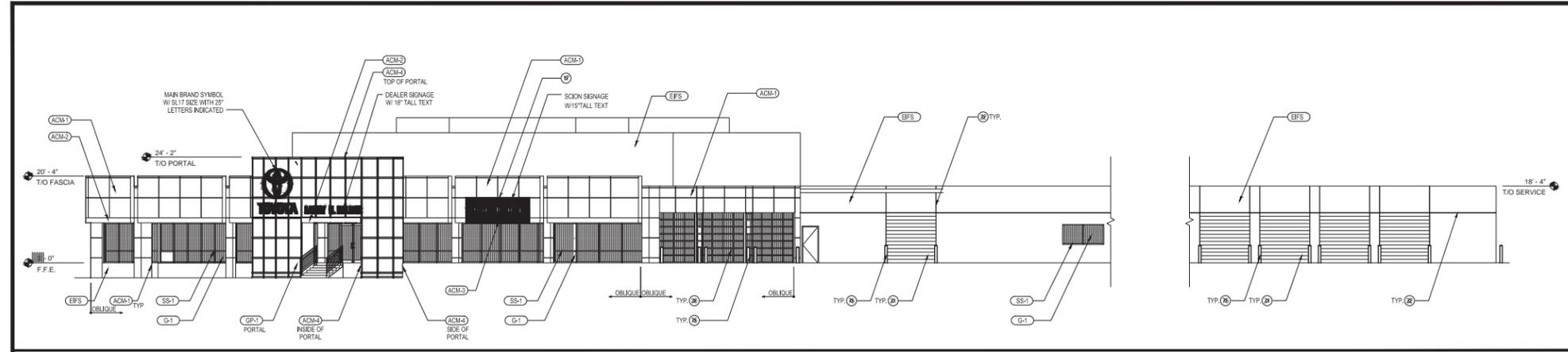
The proposed redevelopment and expansion of the Miller Toyota sales and services center will include an additional 28,579 square feet of new building area, and approximately 200 fewer vehicle storage/parking spaces on the existing site and adjacent real property owned by Applicant (Lot 2 on the Site Plan). Parking areas will be re-constructed to provide ordinance compliant landscape islands and energy saving lighting. The redeveloped sales and service center will include the following environmentally-friendly aspects:

The project will seek LEED certification of the remodel and expansion of the existing automotive sales and service facility. The proposed design will enhance the building character and facilitate the dealership's ability to provide state of the art customer experience and increased environmentally friendly hybrid vehicle sales and service.

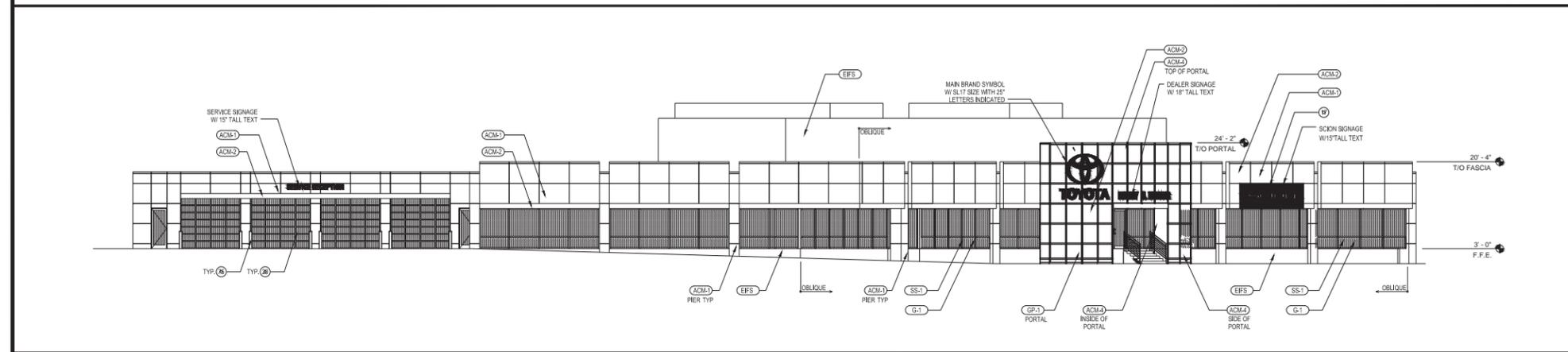
The existing two story building will be expanded by approximately 28,000 SF. This expansion will include new showroom, customer service reception, indoor vehicle delivery, service bays and car wash. The car wash will not be for retail and public use.

The existing ingress/egress point to the site from 47th Street will be relocated approximately 45 feet to the west, and widened by 14 feet, to reduce the congestion that currently occurs as cars turn from Pearl Parkway on to 47th Street. In addition, Applicant construct an new 6-foot wide pedestrian sidewalk along the entire southwestern boundary of the site to facilitate better pedestrian flow between the neighboring parcels to the north and east.

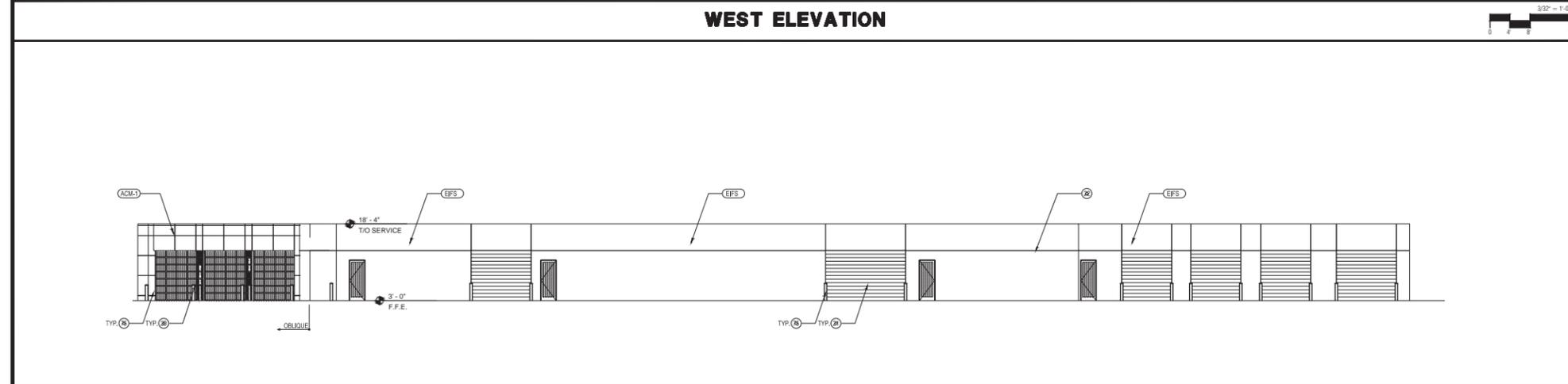
The Applicant anticipates an increase in employment opportunities at the Miller Toyota sales and service center as a result of the proposed redevelopment. Miller Toyota is committed to exploring options to incentivize existing and future additional employees to use public transportation to and from the facility, as well as throughout Boulder during work hours.



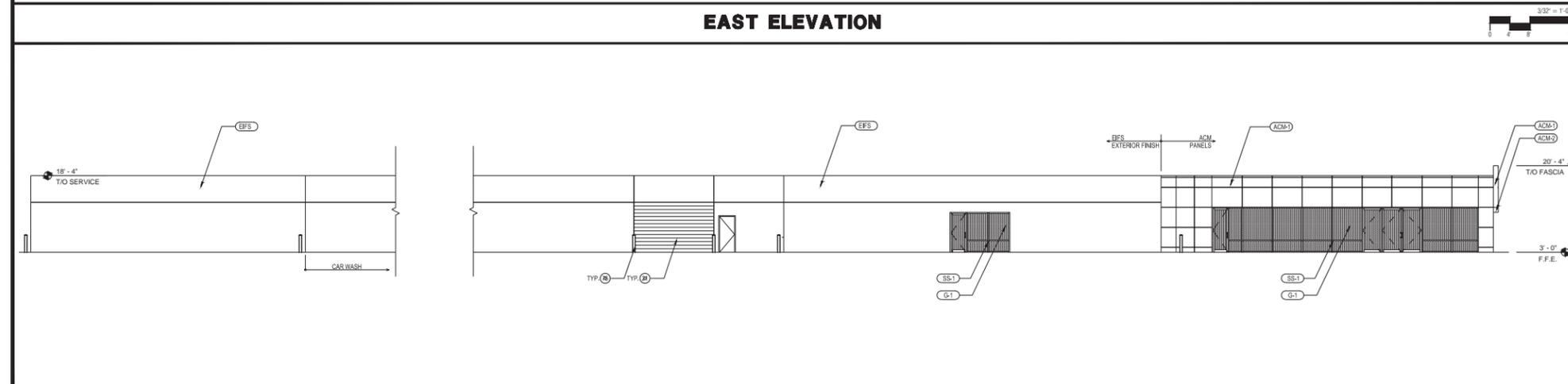
SOUTH ELEVATION



WEST ELEVATION



EAST ELEVATION



NORTH ELEVATION



FINISH LEGEND	
SYM.	MATERIAL DESCRIPTION
ACM-1	MATERIAL: ALUMINUM COMPOSITE PANEL MANUF: REYNOLDBOND OR ALPOLIC SYSTEM: 4 MM THICK BONDED METAL PANEL - 3/8\"/>
ACM-2	MATERIAL: ALUMINUM COMPOSITE PANEL MANUF: REYNOLDBOND OR ALPOLIC SYSTEM: 4 MM THICK BONDED METAL PANEL - 3/8\"/>
ACM-3	MATERIAL: ALUMINUM COMPOSITE PANEL MANUF: REYNOLDBOND OR ALPOLIC SYSTEM: 4 MM THICK BONDED METAL PANEL - 3/8\"/>
GP-1	MATERIAL: GLASS PORTAL MANUF: NOVUM STRUCTURES SYSTEM: SOLEIRA TRANSLUCENT GLAZING SYSTEM WITH STRUCTURAL STEEL SUPPORT FRAMING & ACM SUBROUND
CW-1	MATERIAL: ALUMINUM CURTAIN WALL SYSTEM MANUF: KAWNEER SYSTEM: 1600 SYSTEM 1 SIZE: VARIES - SEE WINDOW FRAME ELEVS FINISH: #14 CLEAR ANODIZED ALUMINUM GLASS: 1\"/>
SF-1	MATERIAL: ALUMINUM STOREFRONT WINDOW MANUF: KAWNEER SYSTEM: TRIFAB 451T SIZE: 2'X 4' - FRONT SET FINISH: PAINTED TOYOTA SILVER ALT. FINISH: #14 CLEAR ANODIZED ALUMINUM GLASS: 1\"/>
SF-2	MATERIAL: ALUMINUM STOREFRONT WINDOW MANUF: KAWNEER SYSTEM: TRIFAB 451T SIZE: 2'X 4' - CENTER SET FINISH: PAINTED TOYOTA SILVER ALT. FINISH: #14 CLEAR ANODIZED ALUMINUM
EIFS	MATERIAL: EXTERIOR INSULATION & FINISH SYSTEM MANUF: DRYVIT, SYNERGY, PLEXKO OR APPROVED EQUAL COLOR: TO MATCH DRYVIT MOONLIGHT WHITE REFERENCE NO. - TOYAO61021 OR STO NAD5-0056 LIGHT GREY

- GENERAL NOTES**
- ALL HOLLOW METAL DOORS AND FRAMES TO BE PAINTED TO MATCH ADJACENT WALL UNO.
 - SEE STRUCTURAL FOR MASONRY CONTROL JOINT LOCATIONS.
 - TYVEK TO BE FURNISHED AND INSTALLED BY ACM FABRICATOR AND MEET AIR AND WATER INFILTRATION SPECIFICATIONS WHEN ACM PANEL WAS TESTED TO MEET THE TOYOTA IMAGE USA II ACM SPECIFICATIONS. TYVEK INSTALLATION SHALL BE REVIEWED AND APPROVED BY TYVEK MANUFACTURER'S REPRESENTATIVE PRIOR TO ACM INSTALLATION.
 - ALL EXTERIOR SIGNAGE SHALL BE BY SEPARATE PERMIT. EXTERIOR SIGNAGE SHALL BE BY PATTISON SIGN CO.

- KEYNOTES**
- SIGNAGE
 - WALL MOUNTED LIGHT FIXTURE
 - TYPICAL BOLLARD W/ COVER
 - PREFINISHED METAL COPING
 - ROOF-MOUNTED MECHANICAL EQUIPMENT
 - LINE OF ROOF
 - OPEN
 - ALIGN REVEAL WITH CENTER OF MULLION
 - ADDRESS NUMERALS BY G.C.
 - TRAFFIC CONTROL LIGHT
 - TYP ROOF DRAIN/OVERFLOW DRAIN NOZZLE
 - ROOF ACCESS LADDER
 - ELECTRICAL EQUIPMENT - SEE ELECTRICAL DRAWINGS
 - INTAKE LOUVER WITH MILL FINISH ALUMINUM FINISH - SEE MECHANICAL
 - MAIN ENTRY ELEMENT (ACM-1)
 - SCION ENTRY ELEMENT (ACM-3)
 - (ACM-3) BEHIND SCION LETTERS TO BE INCLUDED WITH (ACM-1) FASCIA WORK
 - MECHANICAL EQUIPMENT SCREEN
 - HORIZONTAL MOUNTED TRAFFIC CONTROL SIGNAL: SIGNAL-TECH NO. TOLH-RG.
 - GLASS OVERHEAD DOOR
 - METAL ROLL-UP DOOR, PAINT (P-7A)
 - CONTROL/EXPANSION JOINT

JOHN MAHONEY ARCHITECT
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LARRY H. MILLER
 TOYOTA
 2465 48TH CT
 BOULDER, COLORADO

PROJECT NO.:	1340
ISSUE DATE:	1/28/15



SHEET NO. SHEET CONTENTS

R01.00

ENHANCED PHOTO
RENDERING

NO.	DATE	ISSUE	BY	CHK
1	05/21/14	DRAFT SCHEMATIC DESIGN	SF	SF
2	05/21/14	FINAL SCHEMATIC DESIGN	SF	SF





ARCHITECT:

**JOHN MAHONEY
ARCHITECT**

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LARRY H. MILLER TOYOTA
2465 48TH COURT
BOULDER, COLORADO

DATE:	REVISION:
02-23-2015	CONCEPT PLAN SUBMITTAL
03-04-2015	CONCEPT PLAN REVISION

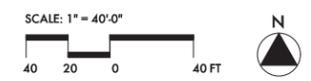
SHEET NAME:
CONCEPTUAL
LANDSCAPE PLAN

SHEET NUMBER:
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LEGEND

-  LARGE MATURING SHADE TREE
-  ORNAMENTAL TREE
-  LANDSCAPE PLANTINGS - SHRUB BED OR LAWN AREA
-  EXISTING LANDSCAPE (ESP. TREES) TO REMAIN. LANDSCAPE PLANTINGS TO BE SUPPLEMENTED, AS NEEDED TO ATTAIN FULL COVERAGE
-  DETENTION POND - SEEDED WITH APPROPRIATE GRASSES AND WILDFLOWERS

ALL PLANTINGS TO BE IRRIGATED WITH AN AUTOMATED IRRIGATION SYSTEM.
ALL LAWN AREAS TO BE SODDED WITH LOW WATER DEMAND TURFGRASS BLEND.





JVA, Incorporated 1319 Spruce Street
 Boulder, CO 80302 Phone: 303.444.1951
 www.jvaja.com E-mail: info@jvaja.com

NO. DATE DESD DWN

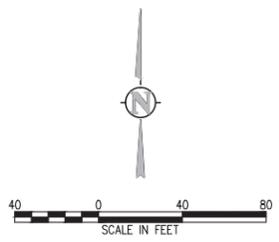
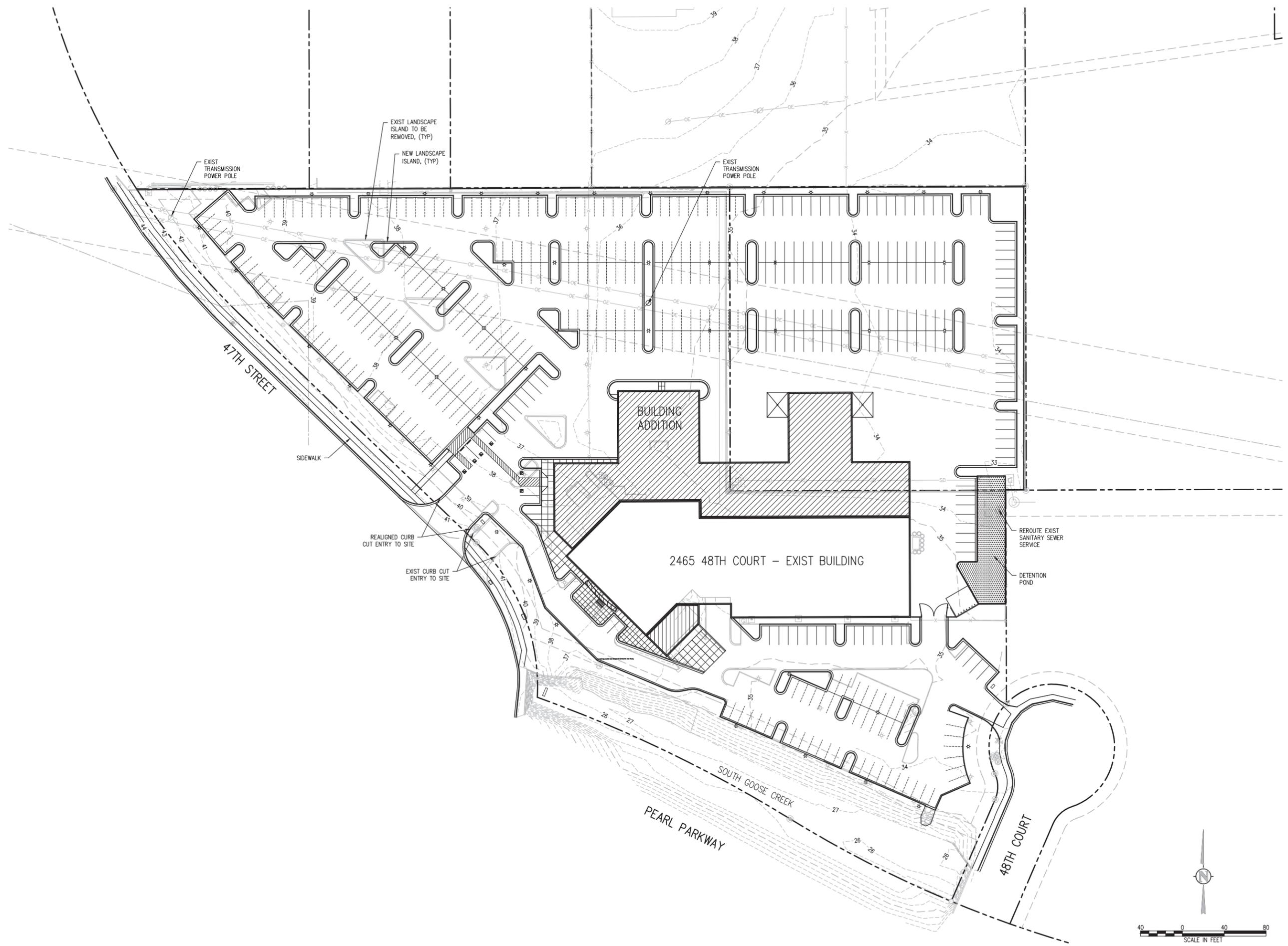
DESIGNED BY: MDE
 DRAWN BY: MDE
 CHECKED BY: HMM
 JOB #: 2367c
 DATE: 03/06/2015

© JVA INC

LARRY H. MILLER TOYOTA
 2465 48TH CT
 BOULDER, COLORADO

CONCEPTUAL CIVIL SITE PLAN

SHEET NO.
 C100





MEMORANDUM

To: City of Boulder Planning & Development Services

From: Steve Tuttle, PE, PTOE; Cassie Slade, PE

Date: January 28, 2015

Project: Boulder Toyota Traffic Analysis (FTH #14060)

Subject: Traffic Assessment

The existing Larry H. Miller Toyota in Boulder plans to remodel and expand the current operations to enhance the building character, increase customer services, and increase sales potential. The site is located in the northeast corner of Pearl Parkway and 47th Street, which is just east of Foothills Parkway. The project proposes to expand the existing building by approximately 28,000 square feet (sq. ft.) to provide a new showroom, customer service reception area, indoor vehicle delivery, service bays and car wash. The site is bounded by commercial/industrial businesses to the north and east, Pearl Parkway to the south, and 47th Street on the west. A vicinity map is shown on **Figure 1**.

In accordance with the City of Boulder site review process, an initial Traffic Assessment is required which includes an analysis of trip generation, distribution, and trip reduction assumptions for the project. This memorandum summarizes this analysis for the subject project.

Trip Generation

To establish the volume of new trips that will be added to the area roadway network with expansion of the current Boulder Toyota, trip generation estimates were calculated based on rates contained in the *Institute of Transportation Engineers (ITE) Trip Generation Manual*.

The trip generation estimates are summarized on **Table 1** for weekday daily, weekday AM, and weekday PM periods. As shown on **Table 1**, the proposed development represents an increase in daily and hourly traffic to the adjacent roadway network.

Auto Trip Reductions

The project is located in an industrial area and surrounded by other automotive sales and repair service businesses. Pearl Parkway has the F, S, and 206 transit routes along it with bus stops near the southeast corner of the property. Currently, there are multi-use paths on the south side of Pearl Parkway and on both sides of Foothills Parkway that link to local and regional pedestrian/bicycle facilities and lead to various destinations within the City of Boulder. There are no bicycle lanes on the roadways adjacent to the Boulder Toyota.

Although there are multimodal facilities within close proximity to the project site, it is anticipated that only a small percentage of employees would utilize these alternative mode choices to get to the dealership. For the purposes of providing a conservative analysis of the site traffic impacts, it was assumed that all trips will be auto and no reductions will be applied.

Trip Types

Due to the nature of automobile sale and service centers, it is anticipated the majority of trips associated with the expansion project will be “new” trips. The following describes the types that will be evaluated for this study:

- *Primary Trips.* These trips are made specifically to visit the site and are considered “new” trips. Primary trips would not have been made if the proposed project did not exist. Therefore, this is the only trip type that increases the total number of trips made on a regional basis.

Proposed Access

The Boulder Toyota currently has two accesses: (1) 47th Street approximately 170 feet north of Pearl Parkway and (2) at end of the 48th Court cul-de-sac. The expansion project proposes to relocate the main access on 47th Street by moving it north by approximately 50 feet. The access on 48th Court will remain the same. It is proposed to add a 3rd access by extending the existing gravel roadway that leads to Pearl Street. It is anticipated that this will serve vehicle and service deliveries.

Site Trip Distribution

Site trips will be distributed onto the study area roadway network as shown on **Figure 2**. The distribution percentages are based on regional land use destinations, existing travel patterns, and other area traffic studies. The following assumptions were made:

- 40 percent to/from Pearl Parkway to/from the west
- 20 percent to/from Pearl Parkway to/from the east
- 15 percent to/from Foothills Parkway to/from the north

-
- 20 percent to/from Foothills Parkway to/from the south
 - 5 percent to/from 47th Street to/from the north.

The proposed distribution at the three accesses is as follows:

- Access 1 on 47th Street: 60 percent
- Access 2 on 49th Court: 35 percent
- Access 3 on Pearl Street: 5 percent

Traffic Impact Study

Per the procedures outlined in the City of Boulder Design and Construction Standards, a full Traffic Impact Study may be required for this project. This traffic assessment serves as a basis for the trip generation and distribution assumptions that would be incorporated into the Traffic Impact Study.

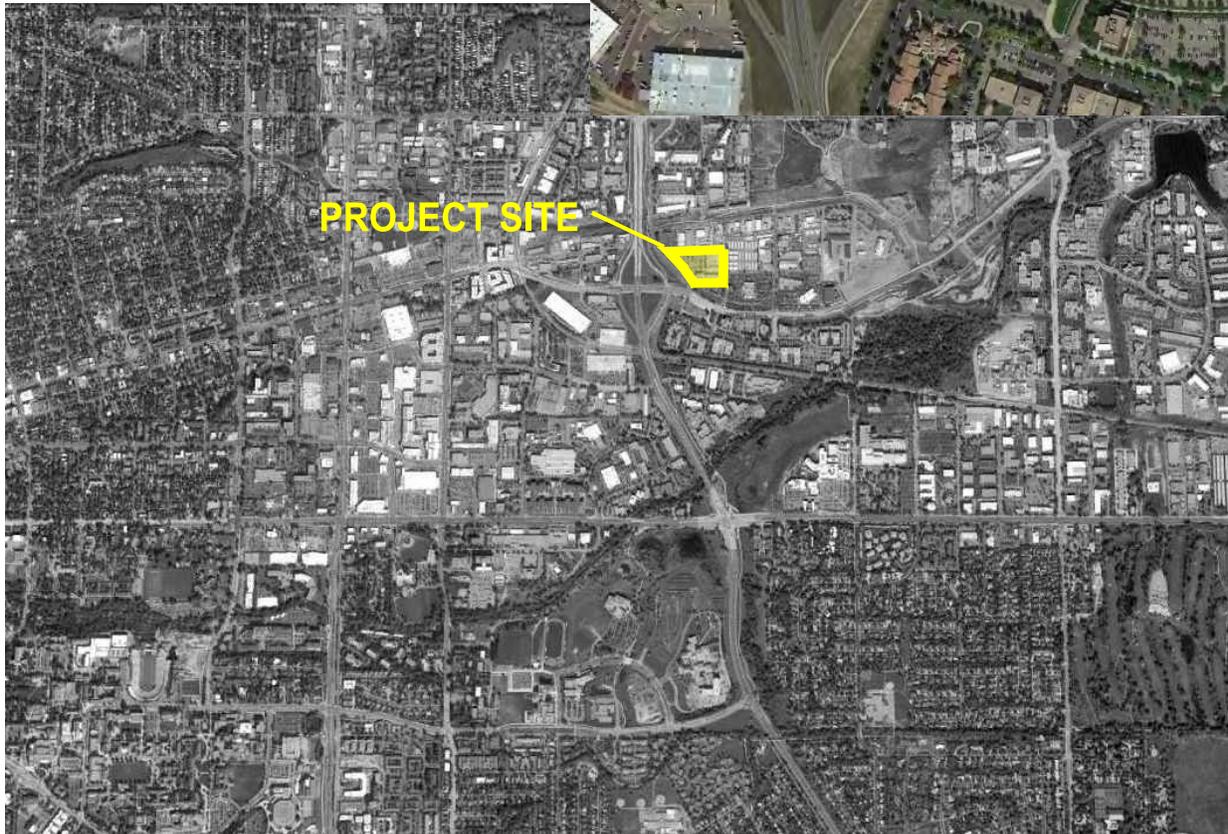
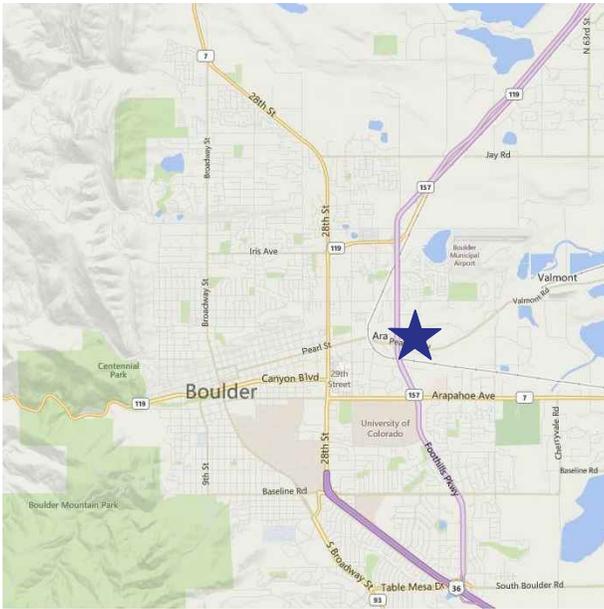
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Attachments:

Figure 1 – Vicinity Map

Figure 2 – Site Trip Distribution

Table 1 – Trip Generation Summary



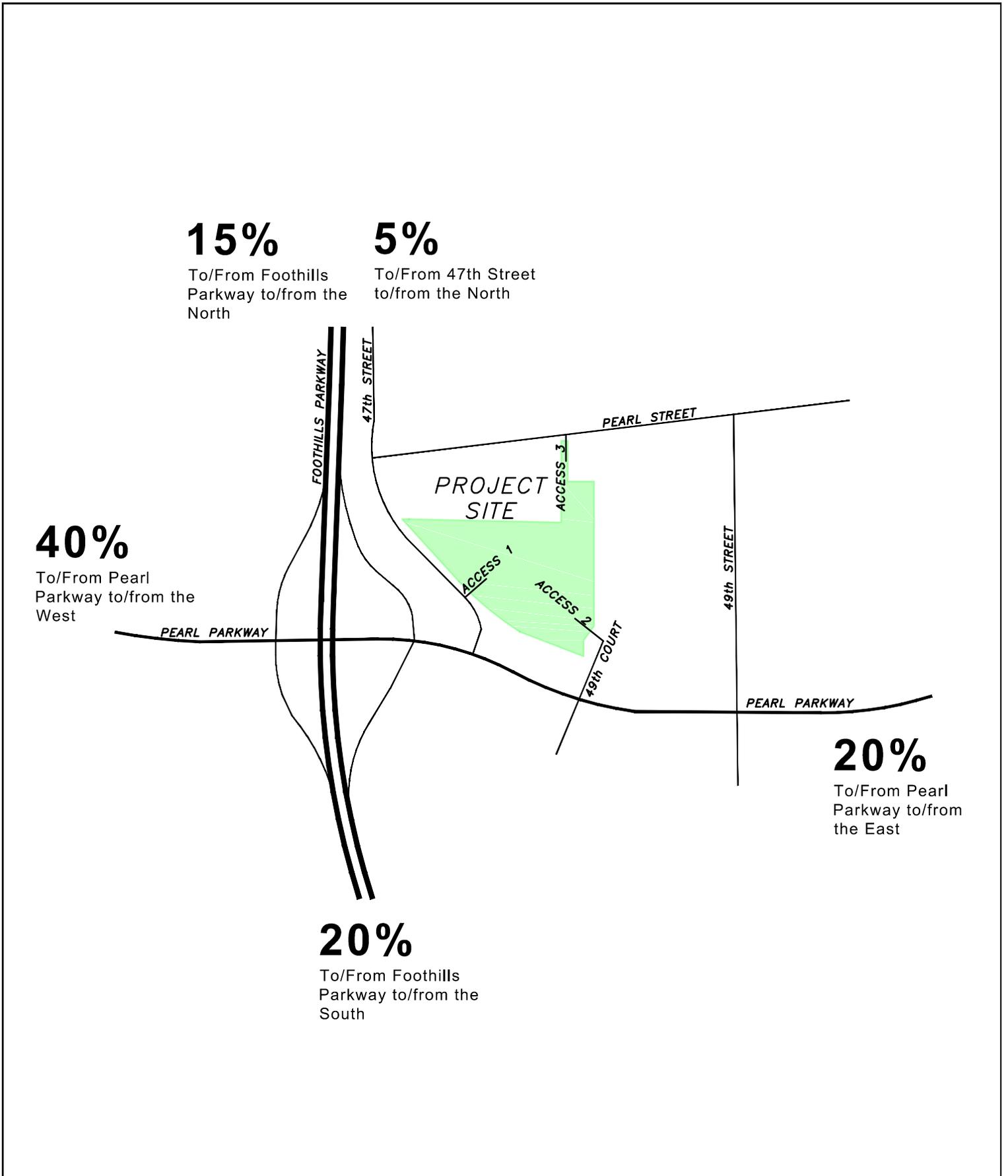




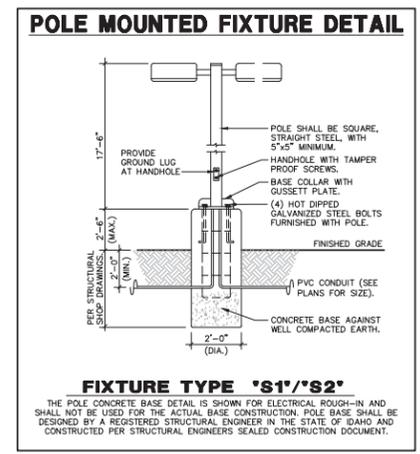
Table 1 - Trip Generation Summary

Land Use	Size	Unit	Average Daily Trips				AM Peak Hour Trips				PM Peak Hour Trips			
			Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
ITE 841 - Automobile Sales	28	1,000 sf	32.30	904	452	452	1.92	54	41	13	2.62	73	29	44
Total New Trips			Daily >	904	452	452	AM >	54	41	13	PM >	73	29	44

Source: ITE Trip Generation Manual, 9th Edition (2012)

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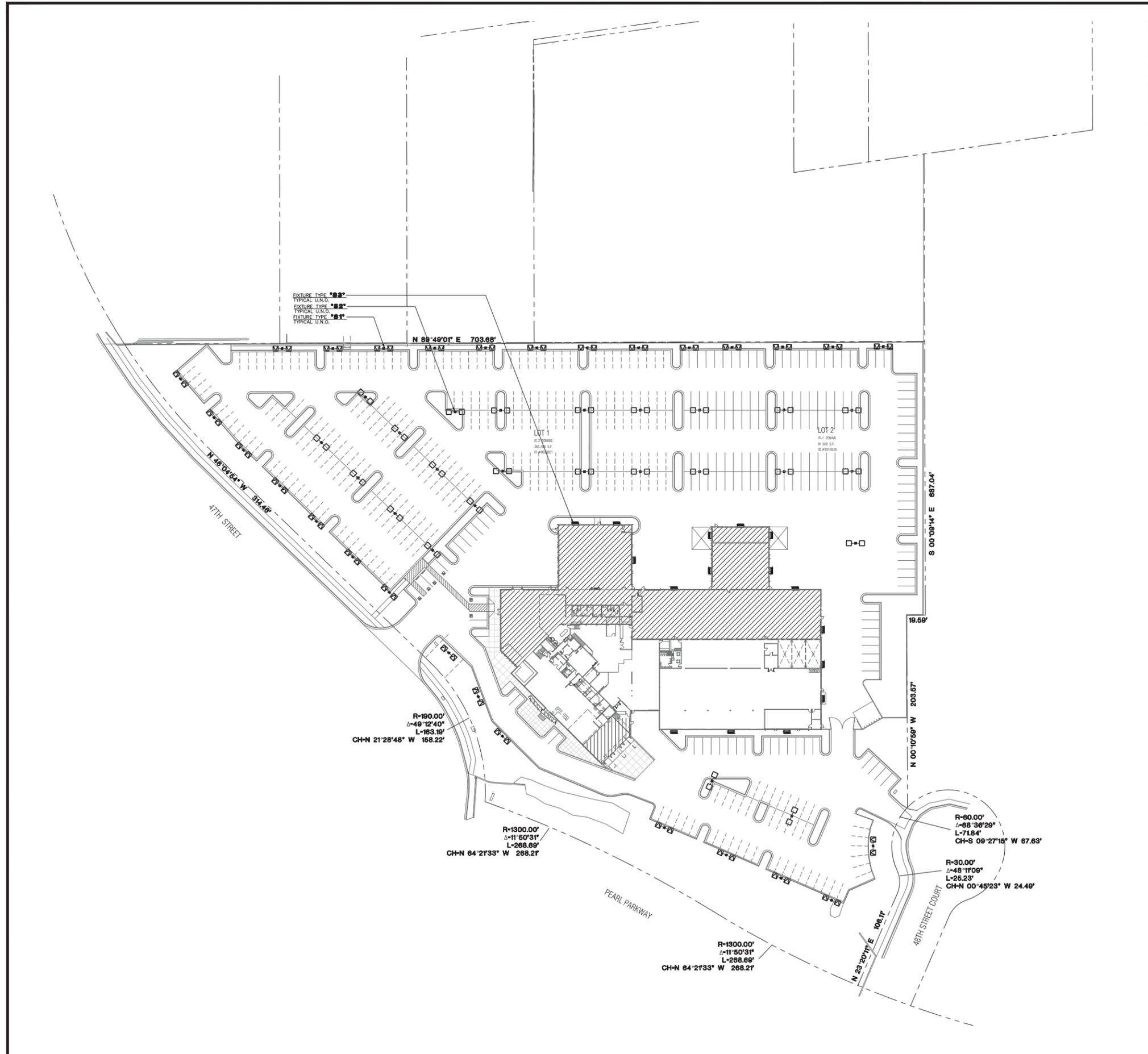
DR SUBMITTAL NOT FOR CONSTRUCTION



LUMINAIRE SCHEDULE

- PROVIDE 1400 LUMEN OR FULL OUTPUT, 90 MINUTE EMERGENCY BATTERY BALLAST FOR ALL EMERGENCY FIXTURES.
- MODULAR WIRING FOR LIGHT FIXTURES IS AN ACCEPTABLE ALTERNATE.
- BASE BID FOR LUMINAIRES SHALL BE BASED ON MANUFACTURERS LISTED "IN CONTRACT DOCUMENTS" UPON AWARD OF PROJECT. ALTERNATE LUMINAIRES NOT LISTED AND PROPOSED BY CONTRACTOR SHALL BE SUBMITTED WITH WRITTEN OWNER APPROVAL AND A DEDUCT TO THE BASE BID IF APPLICABLE.
- PROVIDE MINIMUM 10 MINUTE TIME DELAY TO EMERGENCY FIXTURES WHEN USED WITH HID AREA LIGHTING.

MARK	MANUFACTURER MODEL NUMBER	VOLTS	LAMPS/ INPUT WATTS	REMARKS/MOUNTING
S1	OREE ARE-EDG-2MS-DA-08-E UL-FINSH-525mm-40K	UNV	LED 133W/4000K 8,815 LUMENS	2-HEAD POLE MOUNTED LED FIXTURE. PROVIDE OPTICS ROTATED AS SHOWN. SEE DETAIL, THIS SHEET.
S2	OREE ARE-EDG-5M-DA-08-E UL-FINSH-525mm-40K	UNV	LED 133W/4000K 12,450 LUMENS	2-HEAD POLE MOUNTED LED FIXTURE. SEE DETAIL, THIS SHEET.
S3	OREE LIGHTING SEC-EDG-M-WM-06-E UL-FINSH-525mm-40K	UNV	LED 101W/4000K 8,415 LUMENS	LED WALL PACK. COORDINATE EXACT MOUNTING HEIGHT W/ ARCHITECT'S ELEVATIONS.



LARRY H. MILLER
 TOYOTA
 2465 48TH CT
 BOULDER, COLORADO

Larry H. Miller
Toyota

PROJECT NO. 1340
 ISSUE DATE: 1/19/15

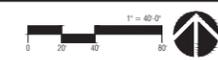
Project Contact/Designer: **BRYAN R. SANDON**
 Project: 134025
HAWKINS DESIGN GROUP INC.
 ELECTRICAL CONSULTING ENGINEER
 282 SOUTH VINEYARD AVENUE SUITE 107
 BOULDER, CO 80501
 PH 480.345.5002 FAX 480.345.9001
 EMAIL: brian@hwdg.com

ALL CONCEPT, DESIGN AND DATA INDICATED ON THESE DRAWINGS ARE THE SOLE PROPERTY OF HAWKINS DESIGN GROUP INC. AND SHALL BE KEPT IN CONFIDENCE AND NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF HAWKINS DESIGN GROUP INC.

SITE LIGHTING PLAN

DR1

ELECTRICAL SITE LIGHTING PLAN





INFORMATION PACKET
MEMORANDUM

To: Members of City Council

From: Jane Brautigam, City Manager

Maureen Rait, Executive Director of Public Works

Mike Sweeney, Acting Director of Public Works for Transportation

Joe Paulson, Transportation Engineer: Signals & Lighting

Date: June 16, 2015

Subject: Information Item - Broadway and Yarmouth Intersection Update

EXECUTIVE SUMMARY

Staff provided council with an Information Item in its Feb. 3, 2015 packet in response to concerns that have been expressed by members of the community regarding the safety and operation of the Broadway and Yarmouth Avenue intersection in north Boulder. The memorandum described the existing conditions at the intersection, as well as studies that had been completed to date regarding the appropriate pedestrian crossing treatment and the potential for installing a traffic signal at that location. The memorandum outlined staff plans for additional data collection and analysis to be performed in the first quarter of 2015, resulting in a report back to council in May 2015.

Using newly collected data, staff performed an updated traffic signal warrant study and found that the current conditions at the Broadway and Yarmouth intersection do not satisfy any of the national standard traffic signal warrants that identify conditions where the installation of a traffic signal should be considered. However, the duration of delays to vehicles on Yarmouth Avenue (during the peak evening hours) has now reached a level that staff believes justifies further examination in the near future. Therefore, staff will update the traffic signal warrant study again later in 2015.

Staff also completed an updated analysis of driver compliance with the requirement to yield to pedestrians crossing at Broadway and Yarmouth. The data suggests that driver compliance on Broadway has improved, but remains lower than desired. Staff has identified enhancements including, “Yield Here” signing and pavement markings placed in advance of the crosswalks that will be installed to improve yielding to pedestrians. These enhancements require the removal of a parking space on Broadway, which will also provide increased sight distance for drivers on Yarmouth entering Broadway. This will assist drivers with identifying and selecting gaps in traffic for turning movements onto Broadway.

In September 2015, when schools are back in session, staff will again measure driver compliance as well as peak hour delays, to see if the intersection is performing adequately for all users. Staff will report back to council on the outcome of those studies during the 4th quarter of 2015.

BACKGROUND

Members of the north Boulder community have expressed concern about the safety and operational effectiveness of the Broadway and Yarmouth Avenue intersection. A primary concern expressed is the safety of pedestrians crossing Broadway at Yarmouth, including people whose destination is the new North Boulder Library Annex on the northeast corner of the intersection. In addition, there is concern about the vehicular movements from westbound Yarmouth turning left onto southbound Broadway, including delays due to conflicting traffic. There are also concerns related to available sight distance to view northbound traffic (including cyclists in the bike lane) due to the on-street parking on the southeast corner of the intersection.

In 2003, staff evaluated the need for a pedestrian crossing treatment on Broadway at the Yarmouth intersection. Using the City of Boulder Pedestrian Crossing Treatment Installation Guidelines, the city found that it met the criteria for a signed and marked crossing treatment, which was installed. In an effort to improve driver compliance with the requirement to yield to pedestrians crossing Broadway, enhancements to the crosswalk signing were made in 2011, and again in 2014. Data collected after the 2014 improvements shows that compliance at this location still remains lower than rates found at similar crosswalks in Boulder.

The Broadway and Yarmouth intersection has also been identified as a potential location for a traffic signal, due to the combination of vehicular and pedestrian activity. Since 2002, staff has periodically performed intersection studies to evaluate if a traffic signal would be beneficial. These studies involve analysis of the current conditions at the intersection using criteria determined by the Federal Highway Administration of the U.S. Department of Transportation. The analyses examine collision history, traffic volume and delay data to assess the safety and efficiency of the current intersection operations to determine if a traffic signal would make it safer or more efficient.

Traffic signal warrant studies performed to date at the Broadway and Yarmouth intersection, including one completed in 2014, have concluded that the installation of a traffic signal would not provide safety or efficiency benefits. However, change continues to occur in north Boulder, including the construction of additional housing and the opening of the North Boulder Library Annex in 2014. In response to these changes, staff performed an additional warrant study in the first quarter of 2015.

ANALYSIS

As of early 2015, the traffic conditions at Broadway and Yarmouth still do not satisfy any of the national standard traffic signal warrants. Of particular interest, collision data at the intersection shows that there has not been a sufficient number of correctible collisions likely to be prevented by signal installation to offset the probable increase of rear-end collisions as a result from signalization. In addition to other factors, the national collision standard specifies that there be five or more correctible collisions in a one-year period. That condition has not been satisfied at Broadway and Yarmouth in previous years. Through May 2015, there has only been one collision reported, which was not of a type correctible by a signal. Based on the current collision analysis, it is not probable that signalization would increase the safety of the intersection.

In 2014, peak hour delay for vehicles on Yarmouth waiting at Broadway was measured to be 1.1 vehicle-hours. In the 2015 update, peak hour delay was found to have increased to 1.98 vehicle-hours during the evening peak. The national peak hour delay warrant specifies delays exceeding 5 vehicle-hours on two lane approaches (such as on Yarmouth at Broadway) as the level at which consideration should be given for potential signalization. However, from past experience in Boulder, staff has found that delay levels exceeding 2 vehicle-hours may suggest further consideration of a traffic signal. Staff examined the peak hour delay data and determined that the average delay per vehicle on Yarmouth was 42 seconds. A traffic signal at Broadway and Yarmouth, operated in coordination with the existing signals on Broadway, would result in average wait times exceeding 42 seconds for vehicles on Yarmouth. Due to this data, staff is not recommending the installation of a traffic signal at Broadway and Yarmouth.

While the current conditions at the Broadway and Yarmouth intersection do not suggest that signalization would be beneficial, the level of driver compliance to pedestrians in the crosswalks remains lower than desired. Therefore, staff has identified additional enhancements that will be installed in June 2015 in an effort to continue to increase yielding to pedestrians at this location. "Yield Here" signing will be installed in both directions of Broadway in advance of the crosswalks, and corresponding "sharks teeth" yield lines will be placed on the pavement. The sign installation will require the removal of a parking space on the east side of Broadway, south of Yarmouth, in front of the Amante coffee shop. This strategy has also been requested by some community members to provide increased sight distance for drivers on Yarmouth looking for gaps in traffic on Broadway.

Follow-up studies will be performed in September 2015 to determine if the improvements made have resulted in increased crosswalk compliance rates, and to determine what effects the intersection changes (and changes in north Boulder overall) have had on peak hour vehicle delay at Broadway and Yarmouth.

NEXT STEPS

Staff will continue to monitor the location and perform a follow up crosswalk compliance study and intersection delay study in September 2015. Staff will report back to council on the outcome of those studies during the 4th quarter of 2015.



INFORMATION PACKET MEMORANDUM

To: Members of City Council

From: Jane S. Brautigam, City Manager
Tom Carr, City Attorney
David Gehr, Deputy City Attorney
Bob Eichen, Chief Financial Officer
Cheryl Pattelli, Director of Finance
Patrick Brown, Revenue and Licensing Officer

Date: June 16, 2015

Subject: Requested Background Information regarding Occupational Privilege Tax (OPT) aka Head Tax for Potential Ballot Item

EXECUTIVE SUMMARY

At the April 14, 2014 study session it was requested that staff provide background information prior to the City Council recess regarding the Occupational Privilege Tax, often referred to as a Head Tax. The topic will be one of the items discussed at the July 14 study session.

QUESTIONS FOR COUNCIL THAT ARE PROPOSED TO BE ASKED AT THE JULY 14 STUDY SESSION

Guidance is requested regarding, does council want staff to move forward with next steps to:

1. Place the question of an OPT on the November 2015 ballot?
2. If it is placed on the ballot, what should the rate of the tax be?
3. If it is placed on the ballot, what exemptions, if any should the city provide?
4. If it is placed on the ballot should the revenue received be used for general purposes of the city, or be dedicated for specific purposes?

BACKGROUND AND ANALYSIS

A. The Occupation Privilege Tax in Colorado

Municipalities in Colorado are not permitted to collect an income tax. That right is reserved for the state. Cities may impose an occupational privilege tax (OPT). This is often referred to as a head tax because of the way it is imposed. Specifically, the OPT, in its pure form, imposes a flat dollar amount on each employee working within the boundaries of the municipality. In other words, it is a tax per head rather than a percent of income.

An OPT is currently in place in Denver, Aurora, Greenwood Village, Sheridan and Glendale. Table 1 illustrates the OPT rates paid by employees in their corresponding municipalities.

Table 1
Rate Paid by Employee

	City/County Denver	City of Aurora	Greenwood Village	Sheridan	Glendale
OPT Rate per Employee per Month	\$5.75	\$2.00	\$2.00	\$3.00	\$5.00

In addition, the employer pays an equivalent tax for each employee they employ. For example, if an employer had a 100 employees and the OPT rate was \$2 per month, the employer would deduct \$2 per month from each employee's pay and match it with an employer contribution of \$2 per employee, for a total OPT of \$400 each month.

The OPT applies to anyone who works within the city. The OPT applies to all employees who are employed by the employer including contract employees.

None of the five entities have any type of mechanism that adjusts the rate up or down in future years. That is the rate does not change based on index of any kind.

Table 2 illustrates the total OPT that would be collected based on the tax rates in various cities. For illustrative purposes no exemptions are used.

Table 2
Example of Total Paid/ Month by Employee and Employer Based on Current Rates

	City/County Denver	City of Aurora	Greenwood Village	Sheridan	Glendale
# of Employees (for illustration only)	100	100	100	100	100
OPT Rate/Month	\$5.75	\$2.00	\$2.00	\$3.00	\$5.00
Employee OPT/Month	\$575	\$200	\$200	\$300	\$500
Employer OPT Match	\$575	\$200	\$200	\$300	\$500
Total OPT Paid to City/Month	\$1,150	\$400	\$400	\$600	\$1,000

The tax cannot be a disguised income tax therefore; the tax cannot vary based upon income level. However, a minimum income threshold can be imposed where no employee making less than a certain amount is charged the OPT (neither the employer nor employee would pay the tax).

Table 3 provides the minimum monthly income threshold in each municipality that has the OPT:

Table 3
Income Threshold per Month Below Which No OPT is Collected

	City/County Denver	City of Aurora	Greenwood Village	Sheridan	Glendale
Threshold Amount per Month	\$500	\$250	\$250	\$500	\$750

Several of the aforementioned municipalities have exemptions in place for governmental employers. This is due to a previous Colorado Supreme Court case. Therefore, in the charts below the amount paid is the employee amount only and there is no governmental employers match.

Table 4 provides a matrix of these exemptions:

Table 4
Exemptions in Cities that Currently have an OPT

Entity	Religious Exemption	Governmental Exemption	Charitable Organizations Exemption*
City/County Denver	Employee pays OPT Employer does not pay OPT	Employee pays OPT Employer does not pay OPT	Employee pays OPT Employer does not pay OPT
City of Aurora	Employee pays OPT Employer does not pay OPT	No exemption**	Employee pays OPT Employer does not pay OPT
Greenwood Village	Employee pays OPT Employer does not pay OPT	No exemption**	Employee pays OPT Employer does not pay OPT
Sheridan	No exemption	Employee pays OPT Employer does not pay OPT	Employee pays OPT Employer does not pay OPT
Glendale	No exemption	No exemption**	No exemption

*If a non-profit organization is qualified by the United States Internal Revenue Service as a tax exempt organization under section 501(c)(3) of the United States Internal Revenue Code then it would be considered a Charitable Organization under the City’s municipal code.

** In checking with the three cities that say they do not exempt government it was found that the federal government never pays the employer match. For state and other local governments there is no clear line of what entity pays it and which do not. It seems to be more based on what the entity decides to do. City of Boulder staff feel the city should pay the employer match if an OPT is placed on the ballot and was approved by the voters.

B. Implementation of Occupation Privilege Tax in Boulder

While updated information has not been garnered from local businesses, the Blue Ribbon Commission I report stated that previous examinations of this tax in the City of Boulder identified three significant concerns that have been voiced:

1. It would place Boulder businesses at a competitive disadvantage to those in the region.
2. Governments do not have to pay the employer portion and Boulder has a significant government employment base.
3. There would be a negative impact on non-profit organizations.

Staff has also received some input that the stronger the correlation between the tax and what it pays for makes the tax more palatable.

If the City Council decides to place some form of this item on the ballot in November of 2015 there will be various opportunities to obtain updated input (council correspondence, letters, public hearings, etc.). Staff will also ensure that this memo is distributed and

made available to those who will have an interest in the issue. If the item moves forward staff will also include the community sustainability assessments and impacts.

To project how much the tax would generate annually staff used employment information provided by the Colorado Department of Local Affairs (DOLA) Demography Department. A second resource used was information from the April 2015 Boulder Economic Council Market Profile. There is a difference in the number of jobs (375) in Boulder when comparing the two sources. Mainly it seems to be due to the timing of the reports. Staff has also been made aware of comments made by DOLA staff in meetings that there are closer to 80,000 jobs within the City of Boulder. To date staff has not been able to track down the backup documentation that supports this statement.

Table 5 illustrates job data received from DOLA. The report is as of the end of the fourth quarter of 2013. The categories of religious and charitable are included in various categories (Health Care, Social Assistance, and Other Services).

Table 5
Employees in Boulder per Industry Category

City of Boulder Industry	Employees	% of Employees
Agriculture, Mining, Utilities	313	0.3%
Construction	1,566	1.7%
Manufacturing	9,650	10.3%
Wholesale	2,982	3.2%
Retail	7,927	8.4%
Transportation & Warehousing	877	0.9%
Information	5,570	5.9%
Finance and Insurance	3,352	3.6%
Real Estate	1,279	1.4%
Professional, Scientific & Tech	14,546	15.5%
Mgt. of Companies	567	0.6%
Admin, Support & Waste Mgmt	3,003	3.2%
Educational Services	1,456	1.5%
Health Care & Social Asst	8,463	9.0%
Arts, Entertainment, & Recreation	1,864	2.0%
Accommodation & Food Service	9,290	9.9%
Other Services	2,745	2.9%
Undefined	11	0.0%
Federal Gov	652	0.7%
State Gov	8,929	9.5%
Local Gov	8,933	9.5%
Total	93,972	100.0%

Table 6 illustrates the annual **estimated** revenue stream from OPT by various OPT rates (rate is per employee/employer per month). The estimated OPT annual revenue is adjusted for exemptions and non-compliance (businesses that are not licensed and/or do not remit their tax).

Staff has made revenue projections using the most conservative case. That is, there is no employer match included for government, religious or non-profits when revenue projections were made to place in Table 6. If Council would like to have staff add them back it can do so for the July 14 study session.

**Table 6
Projected Revenue per Year at Various Rates**

OPT Rate	# of Workers	Employee Paid OPT	Employer Paid OPT less Government-Match	Estimated Annual OPT Paid
\$2	93,972	\$1,849,366	\$1,485,010	\$3,414,356
\$3	93,972	\$2,774,049	\$2,227,515	\$5,121,534
\$4	93,972	\$3,698,731	\$2,970,020	\$6,828,713
\$5	93,972	\$4,623,414	\$3,712,525	\$8,535,891

Based on the research completed by city staff the percent of total employees for which the OPT tax was paid ranged from 79 to 86 percent, with an average of 82 percent. Based on this data the estimated OPT revenue per \$1 is projected to range from \$825,000 to \$890,000 annually. The average would generate \$850,000 annually.

NEXT STEPS

Based on council guidance provided at the July 14 study session, and questions received over the council recess staff will bring back more detailed information as requested. As with all ballot questions for 2015, the date by which the final reading of any ballot issue needs to be done is September 1. Due to the way the ballot calendar falls this year it is two weeks later than in most years.

ATTACHMENTS

- Attachment A: Potential Uses for Occupational Privilege Tax
- Attachment B: Estimated OPT Revenue projection work papers

Attachment A: Potential Uses for Occupational Privilege Tax

Transportation Division:

Option 1: Use Head Tax for employee passes as part of Community-wide Eco Pass Program

The Community-wide Eco Pass committees have discussed the use of a head tax to fund the employee portion of a city or county-wide Eco Pass program. For the City of Boulder, it was estimated that an employee-only pass program would cost about \$5.8m per year. This cost includes both the Eco Passes and the additional transit service needed to meet the new demand and provide higher transit level of service.

Option 2: Local and Regional Transit Improvements and Traffic Demand Management Programming in priority order:

1. \$1 million - Regional Transit Planning and Service Improvements, including arterial Bus Rapid Transit and other regional and inter-regional service.
2. \$1 million - Local Transit Service Buy-ups (improvements in level of service offered by RTD) and new Community Transit Network (CTN) routes
3. \$1 million - Additional Local Transit Service Buy-ups and new Community Transit Network (CTN) routes
4. \$1 million - Combination of First and Final Mile, multi-modal access improvements, and employer-based TDM Program expansion for existing and new developments.

Housing Division:

Revenues received from a head tax would allow the Division of Housing to continue to pursue the city's goal of having 10% of its residences as permanently affordable to low- and moderate-income persons through the creation and preservation of affordable units. Affordable housing continues to be a priority of the City of Boulder and additional funds will allow the city to continue to expand funding to nonprofit and for profit housing providers for the purchase, construction, and maintenance of affordable housing and for the costs of administering programs. Funding decisions are made in accordance with current funding policies and practices including review of funding applications by staff and the City Manager-appointed Affordable Housing Technical Review Group with recommendations sent to the City Manager for approval. Using the current average per unit subsidy of \$69K each \$1M in revenue would equate to approximately 14-15 new or preserved affordable housing units.

Alternatively the city could dedicate additional revenue to pursue new affordable housing goals that result from the Housing Boulder discussion. While specific impacts would depend on the goals, one example of a new program that could be implemented with new funding is a shared appreciation down payment assistance loan program for middle income households. If \$100,000 per household were invested in this manner, 10 households could be served annually for each \$1M in revenue. Following city council's adoption of a new comprehensive housing strategy and the completion of a new nexus study for the recently adopted affordable housing linkage fee a more specific determination of funding impacts will be possible.

General Fund and Other Funds of the City – Capital Projects

General Purpose Capital Projects:

Additional revenues could be used to support debt financing or ongoing costs related to some major capital needs. While one year of revenues would not fund the following capital priorities, the new source of revenue could be accumulated for smaller projects until there were enough funds, or debt could be used to receive up front proceeds to pay for the project and the new source of revenue could be used to pay the annual debt service. If debt were used it would require voter authorization. None of the following currently have a source of revenue to address the need.

1. Fire Station #3

The highest priority unfunded capital item identified is the relocation of Fire Station #3. The current strategy calls for relocating Fire Station #3 out of the 100-year floodplain, co-locating it with Fire Administration Offices, and constructing a separate storage facility for fire vehicles and equipment. In 2011, 13 sites were identified as potential locations for Station 3. After analyzing multiple criteria, six sites remained. Since that time, three of those six could still be possible, each with their own acquisition issues. The top site is still the Mapleton ball fields. This station needs to be 17,000 square feet to house a fire engine, ladder truck, LRV/Ambulance, Dive Team and crews plus a battalion chief, the administration building needs to be 7,500 square feet and the storage building 10,000 square feet. Costs are estimated as follows: One-time Buildings \$11,412,500, Land up to \$8,600,000, On-going \$459,000.

2. Citywide Radio Infrastructure

Another high priority capital item identified is the citywide Radio Infrastructure. Over the next 5 years, much of the city's radio infrastructure will need to be replaced due both to age and new unfunded narrow-banding mandates from the Federal Communications Commission (FCC). This will include the need for new infrastructure as well as new radios, and radio pack sets for all departments using the radio system. Estimated cost \$5 to 6 million.

3. Valmont City Park Phase 2

Phase 2 of Valmont City Park, which will include the design and development of the area south of Valmont Road, may encompass a new sports complex with multi-use athletic fields, baseball/softball fields, a sprayground/splashpark, lighted play courts and potentially utilizing artificial turf. A permanent 18-hole disc golf course could be developed in the northwest portion of the site as well as improvements to existing multi-use pathways with proposed connections to other park trails. A Universally Accessible Play Area has been proposed in conjunction with an adventure play area using enhanced landscaping with efficient, water-conserving irrigation. The existing poultry barn north of Valmont Road will be considered for remodeling for multi-use events. Additional park amenities may include picnic areas, parking areas, potential skate area and an outdoor performance area. The development will incorporate sustainable construction and infrastructure with prairie dog relocation, stormwater management and efficient water conservation. Estimated cost \$48 million.

Attachment B: Estimated OPT Revenues

Industry	# of Workers	\$2 monthly OPT rate for Employees (annual revenue)	\$2 monthly OPT rate for Employers (annual revenue)	Estimated Annual OPT Revenue (\$2+\$2) without thresholds & exemptions	Estimated Annual OPT Revenue (\$2+\$2) with thresholds & exemptions (82%)
Agriculture, Mining, Utilities	313	\$7,512	\$7,512	\$15,024	\$12,320
Construction	1,566	\$37,576	\$37,576	\$75,152	\$61,625
Manufacturing	9,650	\$231,608	\$231,608	\$463,216	\$379,837
Wholesale	2,982	\$71,562	\$71,562	\$143,124	\$117,362
Retail	7,927	\$190,246	\$190,246	\$380,492	\$312,003
Transportation & Warehousing	877	\$21,050	\$21,050	\$42,100	\$34,522
Information	5,570	\$133,672	\$133,672	\$267,344	\$219,222
Finance & Insurance	3,352	\$80,438	\$80,438	\$160,876	\$131,918
Real Estate	1,279	\$30,706	\$30,706	\$61,412	\$50,358
Profession, Scientific & Tech	14,546	\$349,096	\$349,096	\$698,192	\$572,517
Mgt. of Companies	567	\$13,598	\$13,598	\$27,196	\$22,301
Admin, Support & Waste Mgmt	3,003	\$72,064	\$72,064	\$144,128	\$118,185
Educational Services	1,456	\$34,938	\$34,938	\$69,876	\$57,298
Health Care & Social Asst	8,463	\$203,102	\$203,102	\$406,204	\$333,087
Arts, Entertainment, & Rec	1,864	\$44,728	\$44,728	\$89,456	\$73,354
Accommodation & Food Services	9,290	\$222,948	\$222,948	\$445,896	\$365,635
Other Services	2,745	\$65,882	\$65,882	\$131,764	\$108,046
Undefined	11	\$262	\$262	\$524	\$430
Federal Gov	652	\$15,648	\$0	\$15,648	\$15,648
State Gov	8,929	\$214,296	\$0	\$214,296	\$214,296
Local Gov	8,933	\$214,392	\$0	\$214,392	\$214,392
Boulder City Total	93,972	\$2,255,324	\$1,810,988	\$4,066,312	\$3,414,356
OPT Revenue per \$1 (82%) The average of entities contacted					\$853,589
OPT Revenue per \$1 (79%)					\$826,424
OPT Revenue per \$1 (86%)					\$889,809



**INFORMATION PACKET
MEMORANDUM**

MEETING DATE: June 16, 2015

To: Members of City Council

From: Jane S. Brautigam, City Manager
Mary Ann Weideman, Assistant City Manager
Casey Earp, Assistant City Manager I

Date: June 16, 2015

Subject: Information Item: Draft Neighborhood Partnership Grant Program

EXECUTIVE SUMMARY

At the 2015 City Council retreat, several goals were discussed to support a more vibrant and livable Boulder. One specific goal raised was strengthening neighborhoods around the community through resilience and sustainability efforts. To support this goal, \$50,000 has been allocated through the supplemental budget, adopted at the May 19 Council meeting, to fund a program that would partner with neighborhoods to spark community based projects that are initiated, designed and completed by community groups. The draft Neighborhood Partnership Grant Program (Attachment A) has been developed to provide resources to neighborhoods to help create a stronger neighborhood identity and generally enhance the quality of life for the residents of the area. As the program continues to be developed in anticipation of an August 1 program start date, staff would welcome any council feedback by July 15.

BACKGROUND

The draft Neighborhood Partnership Grant Program is an inclusive program that provides active neighborhood groups, ad hoc groups, and community groups with the opportunity to apply for matching funds to complete a neighborhood based project.

This program will be administered by the Neighborhood Liaison in the City Manager's Office. An initial scoring criterion has been developed, based on similar programs from around the country, to evaluate projects at two grant levels. Groups can apply for up to \$1000 under the Spark Funds program to initiate projects such as community organizing, developing communication channels (neighborhood newsletter, social media page, etc.),

host a neighborhood event, or an environmental cleanup project. Under the Neighborhood Enhancement Grant program groups can apply for up to \$20,000 for projects that include but are not limited to physical improvements, public art, neighborhood planning and design, cultural attractions, environmental projects, or local food projects. Every idea that has the support of the neighborhoods will be considered under both categories of grants.

To be competitive in the grant process these groups will have to meet program requirements of adhering to City Codes, receiving endorsements of the neighbors in the area, developing an on-going maintenance plan (if applicable), and providing a detailed project budget. The City is requiring a 25 percent match for larger “Neighborhood Enhancement” projects. Matching funds can be comprised of cash donations, material donations, in-kind labor, professional services and maintenance.

Both tiers of grants will be considered by a group of city staff based on established criteria. For the smaller tier, Spark Grants, the Neighborhood Liaison and the applicable city department representative will evaluate the project based on the submitted application. For the larger Neighborhood Enhancement Grants a committee of city staff will all review the application and evaluate the projects. There will be two application periods for the Neighborhood Enhancement Grants, while the Spark Grants can be applied for year round.

NEXT STEPS

The next steps for developing this program in anticipation of an August 1 program start date are:

- Receive any council feedback by July 15
- Create an application template
- Establish the staff review committee
- Determine insurance requirements
- Create a project template
- Create web and marketing material for the program.

CONCLUSION

Staff looks forward to partnering with neighborhoods during the implementation of this program to further support community needs and further enhance resilience and sustainability efforts.

ATTACHMENT

Attachment A: Draft Neighborhood Partnership Grant Program

Boulder's Neighborhood Partnership Grant Program

What is the Neighborhood Partnership Grant Program?

Boulder's community character and quality of life is supported by unique neighborhoods and engaged community members. The Neighborhood Partnership Program has been created to provide neighborhoods in Boulder with an opportunity to leverage City resources for community-driven projects that are planned and implemented by locally organized groups of residents.

The Neighborhood Partnership Grant Program is an inclusive community program where groups of residents, formally recognized or not, can apply to receive funding for a project(s) that will help support and address specific area needs and create more sustainable neighborhoods. Projects can range from public art to neighborhood gatherings to community planning. All an applicant really needs to apply is a great idea and the support of the neighborhood in which the project is taking place!

Who can apply?

Any group of community members may apply. Applicants need to have a proposal that enhances the quality of life in a Boulder neighborhood. Applications can come from neighborhood organizations, ad hoc groups (with a neighborhood issue in mind), non-profit organizations, community based groups and the like. Partnerships between various groups are encouraged. An individual member of the community cannot apply for these grants.

What projects will the city fund?

The City of Boulder is looking for projects that help promote the sense of community in a neighborhood, enhance quality of life, help increase engagement of residents in the neighborhood and support the sustainability, resilience, and inclusivity efforts of the City. Each project should:

- Support neighborhood sustainability and resilience
- Generally enhance the quality of life and/or neighborhood identity
- Provide a neighborhood/community benefit
- Demonstrate neighborhood engagement through participation in the planning and implementation of the project

What are some examples of possible projects?

- Physical improvements to the neighborhood, like landscaping, street painting or public art
- Neighborhood planning and design
- Youth engagement opportunities
- Community organizing

- Local food efforts
- Arts and Culture
- Environmentally focused projects
- Purchasing and installing additional park amenities
- Developing athletic opportunities in parks
- Hosting a community cultural event
- Having a neighborhood concert
- Support a neighborhood gathering

What funding is available?

There are two types of funds available to applicants, Neighborhood Spark Grants and Neighborhood Enhancement Grants. Both of these funding levels can be used for a wide range of projects. The smaller Spark funds can be applied for year round, while there are two application opportunities for the Neighborhood Enhancement Grants. The total funds available in 2015 will be \$50,000 and once the funding is allocated, applicants must wait until the following year to apply.

	Neighborhood Spark Grant	Neighborhood Enhancement Grant
Awards	Up to \$1,000	Up to \$20,000*
Application Deadlines	Year Round	One each: September 1 and November 1 st for 2015
Grant award	3 to 4 weeks after application	8 weeks after application
Contract with City	Within one month of notice	Within one month of notice

*For the Neighborhood Enhancement Grants, each partnership requires that the applicant(s) neighborhood or community group donate a 25% match of the City’s contribution through volunteer labor, donated materials or services, and/or cash. The time spent developing the application for a project can go toward this match. Volunteer labor is valued at \$20 per hour.

How do I/we apply?

Each applicant must submit a completed application (located here) to the Neighborhood Liaison outlining their project, the specific monetary amount requested, the steps they have taken to gather neighborhood support, the resources available for the project (include a project budget), and a proposed timeline. It is encouraged that each applicant spend adequate time developing support for a project in the neighborhood before submitting an application. If an applicant is proposing a neighborhood engagement project, then the applicant needs to develop a clear outreach strategy and desired outcomes. Every project should have the support of the neighborhood; individuals are not eligible for these grants. If you are applying for the larger Neighborhood Enhancement Grant, there are two application periods, the first week in September and November for 2015. City staff is available to

answer questions leading up to these application periods. If an application is not funded at any time, applicants may adjust and resubmit for the same project during the next application period.

Here are suggested ways of gathering neighborhood support for a neighborhood enhancement project:

- Hold a neighborhood meeting
- Gather signatures
- Produce flyers and collect emails
- Have a meeting at the location of the proposed project
 - Gather input from neighbors on what they would like to see
- See if you can partner with a locally based community organization, or non-profit

Here are suggested ways of creating a community engagement project:

- Develop an outreach strategy
 - Knock on doors, create a listserv, develop a social media page, create a neighborhood newsletter, etc.
- Host a neighborhood party or event
 - Develop a goal for a project that enhances quality of life. This can be developing relationships with neighbors, discussing current issues, creating communication channels or discussing a vision for the neighborhood.
- Create a social opportunity or neighborhood organization
 - Create a plan to develop a representative group of neighbors.

How will our project be evaluated?

Spark and Neighborhood Enhancement Grants are evaluated differently. The Neighborhood Liaison, along with a representative from any applicable department, will review Spark Grant applications based on the criteria outlined below and then issue grants when funds are available.

For Neighborhood Enhancement Grant applications, there is a standing committee of City staff, representing a cross section of departments, who review and evaluate applications. Staff members will review each Neighborhood Enhancement Grant application based on the criteria below:

- Project Idea & Geographic Equity (10 pts) – Points are awarded to underrepresented neighborhoods based on previous Neighborhood Partnership Projects.
- Neighborhood/Community Participation (20 pts) – A project earns points based on the active participation of community members and neighborhood residents.
- Project Resources and Readiness (20 pts) – Points are awarded based on the completeness of the application and by having every piece of the project requirements in place

- Incorporates City Council Vision/Initiatives (25 pts) – Points are awarded to projects that take into account City Council Initiatives, address an unfunded or underfunded project, and that fit within the City’s Sustainability Framework. The neighborhood liaison can help applicants identify/locate these documents.
- Quality of Life Outcomes (25 pts) – Points are awarded based on how the project enhances life for the residents of the neighborhood. Enhancement can be both through physical improvements or creating greater sense of neighborhood identity.

Are there any items that do not qualify for funding?

- Individuals
- Organizations located outside of the city limits of Boulder
- Applicants who have failed to successfully carry out contracted projects in the two preceding years
- Duplication of public or private programs
- Replacing lost funding
- Purchasing land/buildings
- Pay for traveling expenses
- Pay for expenses already committed to before the contract with the City

What are the contracting requirements for a Neighborhood Spark Grant?

- Have an agreed upon work plan signed by the applicant and Neighborhood Liaison
- Neighborhood Spark Grant waiver has to be agreed to and signed
- Reporting requirements
 - Each project is required to submit reports to the neighborhood liaison on progress.

What are the contracting requirements for a Neighborhood Enhancement Grant?

- The award is paid out in installments on a reimbursement basis
- The applicant needs to identify a fiscal sponsor
 - An example of a fiscal sponsor would be Play Boulder. Play Boulder can act as a fiscal sponsor for parks-related projects if the applicant does not have the necessary structure to manage the funds. There is a small administrative fee associated with using most fiscal sponsors. City staff can help identify fiscal sponsors if the applicants have not already identified one.
- Insurance
 - Each project will need to have insurance for volunteers
 - Occasionally projects can be covered by a waiver agreeing to indemnify and hold harmless.
- Contingency

Projects can go over budget due to unforeseen circumstances while in the planning stages. Each applicant needs to budget a 5% contingency in the project plan for physical upgrades.

- Reporting requirements
 - Each project is required to submit reports to the Neighborhood Liaison on progress.

The City of Boulder is committed to helping applicants interested in this program work through the requirements. If you have questions about an idea or would like to understand the requirements further, please call the Neighborhood Liaison.

It is as simple as 1, 2, 3.

First, you need:

- A great idea!
- A simple sketch of your idea, with the location identified
- An idea of the project budget
- A plan to meet your cost-share through fundraisers, in-kind labor, cash donations, etc.

Second, talk to your neighbors: show them the sketch, tell them about the cost-share, and earn their support! The City requires:

- The endorsement of the commonly recognized neighborhood association, the homeowner's association for your area (City staff can help you to identify this), or a group of committed neighbors.
- An agreement to maintaining the project after installation.

Third, send your application to the Neighborhood Partnership Grant Program. Please include in your email:

- Your name, phone number, and organization you are representing.
- A project location, a simple sketch, and a brief description of your idea.

Staff Contacts

FAQ

What groups can apply?

- All community or neighborhood based groups, non-profits and ad hoc groups can apply for these grants.

Can an individual apply?

- No, the program is intended to enhance the quality of life for the neighborhood not a single neighbor. Gathering support of community groups, neighbors, and HOAs is very important to be competitive in this process.

How do I get support from neighbors?

- Gathering signatures and addresses is the easiest way to show you have the support of the neighboring properties. Get neighbors involved early in the process, the more willing supporters you have both on paper and in volunteers will make the project competitive.

Do I need a permit?

- Yes, in some instances. The Boulder Municipal Code Chapter 8-5 outlines the requirements for Right-of-Way permits. All physical improvements need a permit; general weeding or landscaping and community cleanup efforts need waivers but not a permit.

Do I need insurance?

- Yes, for some projects. The City of Boulder requires anyone performing work that could result in injury on public property to be covered **by the contractors insurance**. For simple public art projects or limited landscaping, the contractor needs to have each volunteer sign a waiver.

Who can act as my fiscal sponsor?

- Play Boulder is an example of a fiscal sponsor. Other non-profit organizations can act as a fiscal sponsor. There is an estimated administrative cost of 5% associated with using Play Boulder as the fiscal sponsor.

Can I propose a project on private property?

- Projects need to have public benefit. In some circumstances this can be achieved through a project on private property.

Can I resubmit my application if it was previously unfunded?

- Yes



INFORMATION PACKET MEMORANDUM

To: Members of City Council

From: Jane S. Brautigam, City Manager
Maureen Rait, Executive Director of Public Works
Mike Sweeney, Acting Director of Transportation for Public Works
Bill Cowern, Transportation Operations Engineer
Shannon Young, Transportation Engineer

Date: May 7, 2015

Subject: Information Item: Update on the Transportation Report on Progress

EXECUTIVE SUMMARY

A critical component to the successful implementation of the Transportation Master Plan (TMP) is the measurement and monitoring of identified metrics tracking progress on TMP goals and associated measurable objectives. The biennial Transportation Report on Progress is currently under development and slated for release in fall 2015. This information item provides an update on the roadway performance metrics portion of the overall report on progress.

The City of Boulder tracks the performance of the roadway system through a number of metrics, including annual traffic count programs, peak-hour intersection levels of service, and travel time studies on key east-west and north-south corridors. This information item compares the findings of these studies to the increase in trip-making potential within the City of Boulder, with both population and job growth estimates.

The results of the roadway system metrics evaluation indicate that traffic conditions have remained stable, despite increases in population and employment. While the city's population has been growing by an average of 0.4 percent annually and the number of jobs has been increasing by an average of 0.3 percent annually over the past 15 years (2000 to 2014), the city's annual traffic count programs suggest that traffic volumes have decreased over the same time period. Traffic volume on arterial roadways within the city has been decreasing by about 1.1 percent annually. The recent peak-hour level of service analyses of signalized intersections indicate improvements in intersection operations over the last few years. Furthermore, the travel time studies on major corridors show that the time required to travel across the city has not increased in more than 25 years.

FISCAL IMPACT

The City of Boulder currently spends approximately \$70,000 per year to collect traffic data and perform related studies that measure traffic and congestion on city roadways. There is no anticipated increase in cost at this time.

COMMUNITY SUSTAINABILITY ASSESSMENTS AND IMPACTS

- **Economic:** Lack of good access to jobs and services from a congested transportation system can have a negative impact on a local economy. The roadway system evaluations and conclusions will help inform the city's decisions about managing the transportation system.
- **Environmental:** Traffic congestion can have negative environmental impacts, including air pollution and greenhouse gas emissions. The roadway system evaluations and conclusions will help inform the city's decisions about managing traffic congestion.
- **Social:** Congestion on multi-jurisdictional roadways is often a point of contention with intergovernmental relations. The roadway system evaluations and conclusions will help inform decisions by the city and its regional partners about managing traffic congestion.

BACKGROUND

The performance of the city's roadway system is evaluated using several different metrics, including traffic volumes, peak-hour intersection levels of service, and travel time data collected on arterial roadways.

Traffic volume data is collected by three yearly count programs: the Arterial Count Program, Boulder Valley Count Program, and Turning Movement Count Program. The Arterial Count Program has been used since 1982 to capture average daily traffic (ADT) volumes on a selection of 18 arterial roadway sections throughout the city. Data from this program is used to calculate trends in overall traffic volumes within the city and track progress towards the TMP goals. The Boulder Valley Count Program has been in place since 1993, and captures all traffic entering and exiting the city. The turning movement count program captures peak-hour intersection volumes for each specific turn movement at all signalized intersections in the city. Data is collected every three years on a rotational basis and includes morning, noon, and evening peak hours. Peak-hour turning movement volumes are a key factor used to determine intersection levels of service.

Level of service is an operational analysis method that assigns a quantitative measure (level of service A through F) based on average vehicle control delay. Since the capacity and performance of arterial roadways are controlled by the signalized intersections, an operational analysis of these intersections is used to further evaluate the city's roadway system. The level of service (LOS) analysis is conducted every three years for all signalized intersections within the city. This analysis is conducted by modeling the city's transportation network, including intersection geometries and peak-hour turning movement volumes, to determine the average vehicle control delay per movement, approach, and intersection according to the Highway Capacity Manual (HCM) methodology. Based on the control delay, a LOS is assigned for each intersection and each turn movement.

In addition to traffic volumes and levels of service, the city also tracks travel times when evaluating the roadway system. Travel time studies are conducted every three years for major east-west corridors and north-south corridors. These corridors include Arapahoe Avenue, Broadway, Valmont Road, 28th Street, Peal Street, and Foothills Parkway. The travel time studies measure the time it takes to traverse the entire corridor across the city during the peak traffic hours (morning, noon, and evening) and provide direct quantitative insights into how the roadway system is performing over time.

ANALYSIS

The results of the roadway system evaluations indicate that traffic conditions and operational performance have remained stable over the past 15 years. Traffic volumes on the city's arterial roadways have generally decreased over this time period, despite the fact that the trip-making potential from population and employment has increased. Additionally, the LOS evaluation and travel time studies show similar patterns, as vehicle delay and travel times have not increased.

Traffic Volumes

An analysis of 15-year traffic count volumes from the Arterial Count Program shows that, on average, traffic volumes on the city's arterial roadways have been decreasing by about 1.1 percent annually. Conversely, the city's population has grown by an average of 0.4 percent annually and employment has increased by an average of 0.3 percent each year. Additional population and jobs typically result in additional trip-making potential. However, this added trip potential has not resulted in increased traffic volume on Boulder's arterial roadways. These trends are illustrated in **Figure 1** below.

For more detailed information, view the interactive [map of the city's vehicle traffic count data](#).

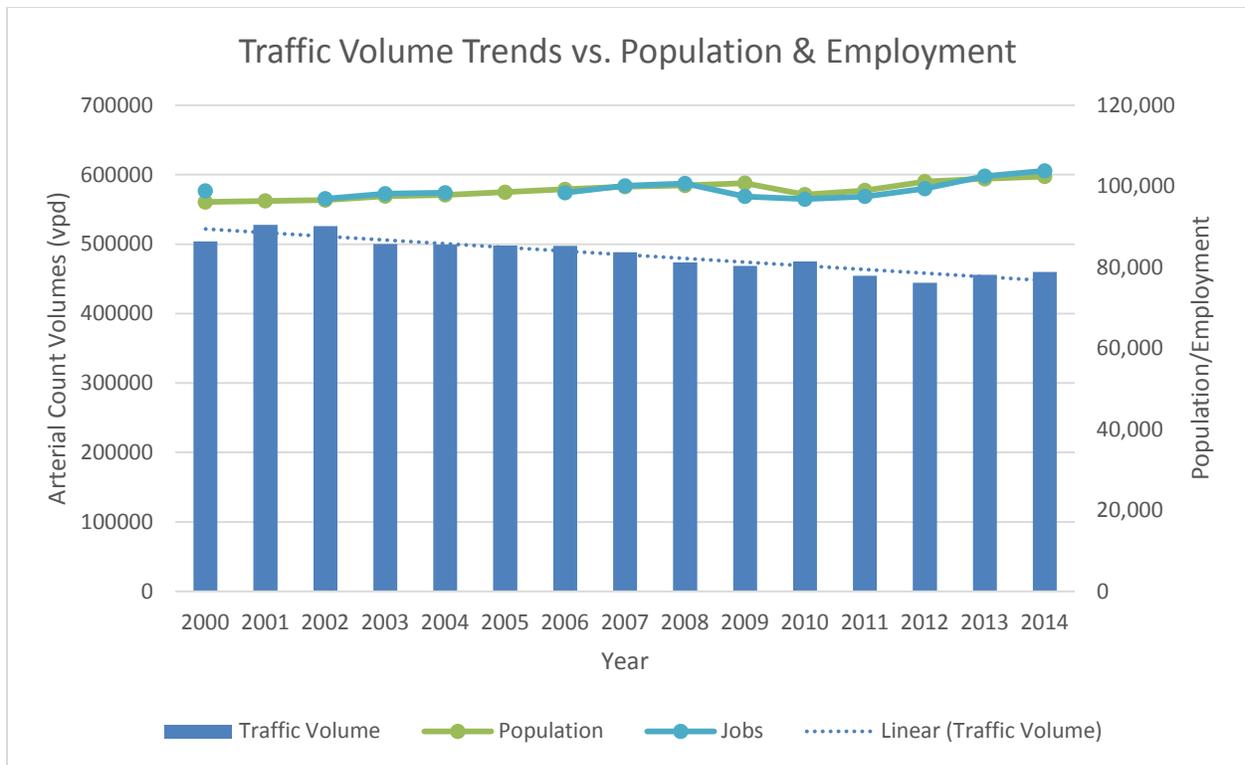


Figure 1. Trends in Boulder Traffic Volumes, Population, and Employment

Level of Service

In 2015, staff completed an update of LOS at all signalized intersections, based on traffic volumes from 2012 through 2014. The results of the LOS analysis support the trends seen in the city’s arterial count program. The LOS at signalized intersections has not degraded, even as the city has grown in both population and employment. The number of intersections with an overall LOS of E or F during any peak hour is tracked for each update, and the percentage of intersections at overall LOS E or F has remained around 19 to 21 percent during the last several LOS updates and dropped to 11 percent in the 2015 report. This reflects the decrease in traffic volumes during the three previous years. The 2015 LOS update also began tracking the percentage of traffic in each peak period that experiences a movement of LOS E or F. This is a baseline metric that staff will be tracking with all future LOS updates. The results of the recent LOS analyses are summarized in Table 1. A copy of the draft 2015 LOS update is provided as **Attachment A**.

Table 1. Summary of Level of Service Results

Year	Total Number of Signalized Intersections	Number of Intersections at LOS E or F in Any Peak Hour	Percent of Total
2007	132	25	19%
2009	133	25	19%
2011	133	28	21%
2015	138	15	11%

Travel Times

Travel time studies were completed for Broadway, 28th Street, and Foothills Parkway in 2012 and for Arapahoe Avenue, Valmont Road, and Broadway in 2014. Changes in corridor travel times can be caused by a variety of factors, including intersection improvements, modifications to traffic signal timing, construction projects, and fluctuations in traffic volumes. Increased traffic congestion would likely adversely affect travel times. The latest travel time studies provided results consistent with past studies, revealing no significant changes to the time that it takes drivers to traverse these corridors.

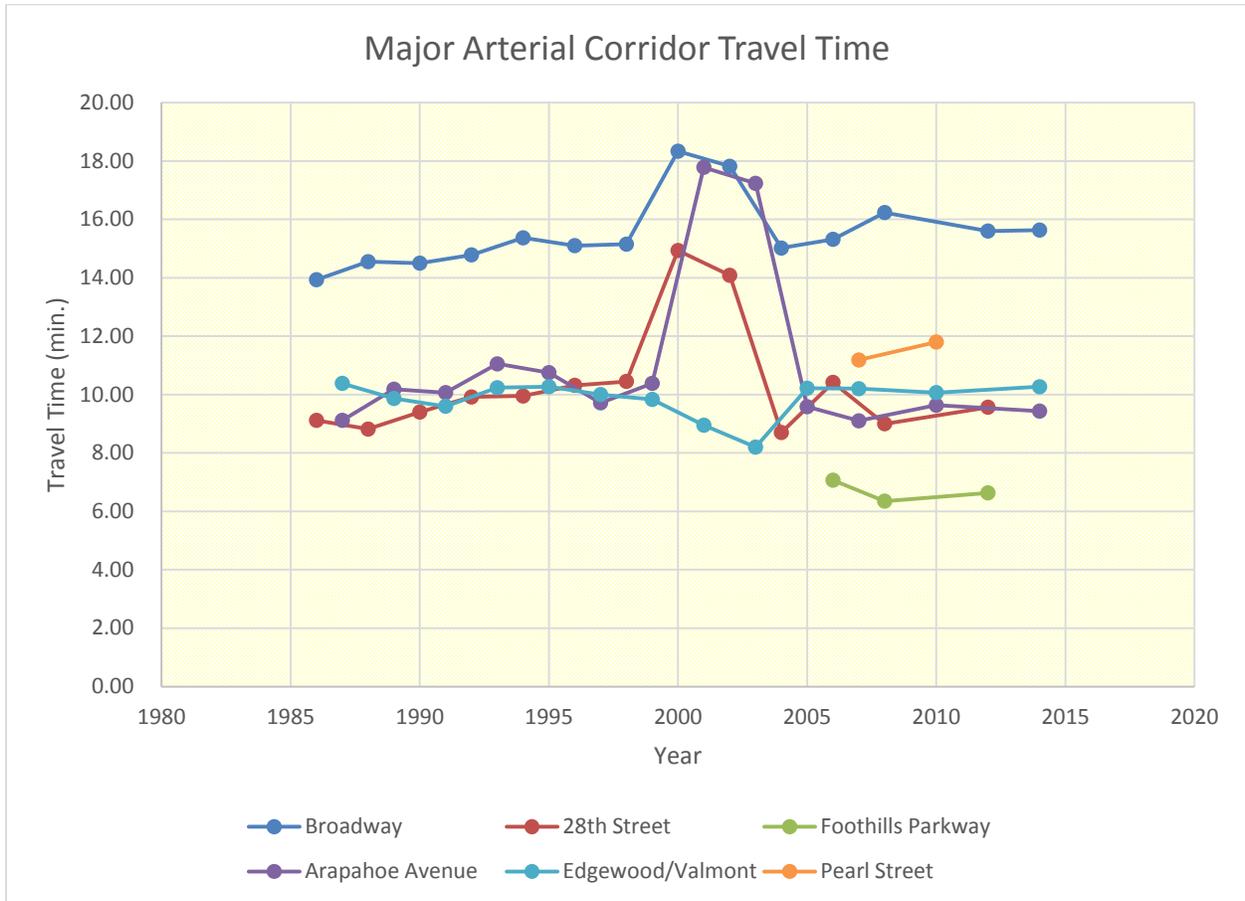


Figure 2. Travel Time Trends on Major Corridors

As shown in Figure 2 above, travel times have remained relatively steady over the past 10 years. The sharp decrease in travel times on 28th Street between 2006 and 2008 was most likely a result of improvements at the Iris Avenue intersection. The latest travel time studies are provided as **Attachment B** and **Attachment C**, respectively.

NEXT STEPS

The city will continue to use these evaluation procedures to monitor the roadway system on a regular basis. The roadway metrics are an element of the overall TMP multimodal transportation system metrics. These results will be incorporated into the biennial Transportation Report on

Progress (scheduled for the fourth quarter of 2015), providing a comprehensive reporting on the nine measurable objectives.

ATTACHMENTS

- **Attachment A:** Draft 2015 Signalized Intersection Level of Service Report
- **Attachment B:** Drive Time 2014 Report
- **Attachment C:** Drive Time 2012 Report

DRAFT**MEMORANDUM**

To: Joe Paulson, PE
City of Boulder Signal Operations Engineer

From: Steve Tuttle, PE, PTOE

Date: March 4, 2015

Project: City of Boulder Signalized Intersection Level of Service

Subject: 2015 Update

Fox Tuttle has completed an update of the City of Boulder Signalized Intersection Level of Service (LOS) database. The purpose of this memorandum is to summarize the results of the LOS analysis and compare to previous reports.

Current intersection turning movement counts, timing/phasing modifications, and geometric information were obtained from the City and incorporated into the database. The LOS calculations were performed using Synchro 8 software. The last report was performed in 2011. As the City generally counts each intersection on a schedule of every 3 years, this current update incorporates new traffic volumes at most of the signalized intersections, along with timing plan changes and geometric improvement projects.

The following Tables and Figures are attached:

Table 1 - LOS Summary Table: This table provides overall intersection and individual movement Levels of Service for each intersection and time period (AM, Noon, and PM peak hours) and includes the date that the turning movement count was performed.

Figure 1 - AM Peak Hour Levels of Service: This figure shows citywide Level of Service operations for the AM peak hour.

Figure 2 - Noon Peak Hour Levels of Service: This figure shows citywide Level of Service operations for the noon peak hour.

Figure 3 - PM Peak Hour Levels of Service: This figure shows citywide Level of Service operations for the PM peak hour.

Figure 4 – Critical Peak Hour Levels of Service: This figure shows citywide Level of Service operations for the peak hour which represents the most congested operations at each individual intersection.

The following table summarizes the overall intersection LOS data for the current and previous reports. Some variations between data years may be attributable to differences in the methodologies used by the TEAPAC (used from 1998 to 2001) and Synchro software packages (currently using Synchro Version 8), as well as differences in traffic count technologies used which may affect volume accuracy.

Table 1 - Summary of Level of Service Results

Intersection Data										
Report Year	Total #	# at LOS E or F in Any Peak Hour	% of Total	# at LOS E or F in AM Peak Hour	% of Total	# at LOS E or F in Noon Peak Hour	% of Total	# at LOS E or F in PM Peak Hour	% of Total	LOS Software Used
1998	126	29	23%	9	7%	11	9%	27	21%	TEAPAC/Signal97
1999	126	32	25%	11	9%	12	10%	30	24%	TEAPAC/Signal97
2000	127	36	28%	13	10%	16	13%	33	26%	TEAPAC/Signal2000
2001	129	35	27%	13	10%	11	9%	31	24%	TEAPAC/Signal2000
2002	130	31	24%	9	7%	12	9%	28	22%	Synchro 5
2003/2004	131	25	19%	7	5%	9	7%	23	18%	Synchro 6
2007	132	25	19%	8	6%	7	5%	25	19%	Synchro 7
2009	133	25	19%	5	4%	4	3%	25	19%	Synchro 7
2011	133	28	21%	6	5%	8	6%	24	18%	Synchro 8
2015	138	15	11%	4	3%	4	3%	12	9%	Synchro 8

Per our recent discussions, we have included a new metric for the Year 2015 report which determines the percentage of drivers that experience LOS E or F at City of Boulder signalized intersection using the volume for each movement, the LOS letter grade that movement experienced per the calculations, and the total hourly entering volume for all intersections combined.

Peak Hour	Total Entering Volume	# of Entering Vehicles Experiencing LOS E or F	% of Entering Vehicles Experiencing LOS E or F
AM	275,116	18,128	7%
Noon	275,391	9,783	4%
PM	351,425	33,520	10%

I hope that the information generated in this analysis and summarized in this memorandum are helpful. Please do not hesitate to call if you have any questions or would like to discuss.

/sgt

City of Boulder Signalized Intersection Level of Service Summary

DRAFT

3/4/15

ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	04/03/13	Broadway & 27th Way		13.2	B		12.5	B		15.6	B
		EBL									
		EBT									
		EBR									
		WBL	437	33.5	C	422	28.4	C	759	26.7	C
		WBT									
		WBR	17	35.4	D	33	49.1	D	36	19.0	B
		NBL									
		NBT	1304	5.1	A	699	3.8	A	942	11.1	B
		NBR	635	7.1	A	301	4.4	A	495	13.6	B
		SBL	2	22.4	C	8	12.7	B	20	10.9	B
SBT	598	20.2	C	622	12.5	B	1208	12.2	B		
SBR											
2	04/02/13	Broadway & Baseline Rd.		30.1	C		29.1	C		39.8	D
		EBL	9	32.3	C	18	35.6	D	21	28.6	C
		EBT	373	42.2	D	291	42.4	D	380	39.2	D
		EBR	147	14.8	B	98	15.4	B	209	10.7	B
		WBL	40	47.7	D	53	32.1	C	73	64.0	E
		WBT	404	64.1	E	309	40.6	D	327	54.8	D
		WBR	685	0.8	A	439	0.5	A	527	0.5	A
		NBL	196	71.9	E	168	56.8	E	180	33.9	C
		NBT	1009	24.5	C	549	28.9	C	687	33.7	C
		NBR	58			70			60		
		SBL	383	40.5	D	498	42.3	D	735	78.7	E
SBT	389	20.6	C	440	14.1	B	846	33.9	C		
SBR	14			13			10				
3	09/17/14	27th Way/US 36 W. Ramp & Baseline Rd.		25.1	C		20.3	C		26.0	C
		EBL									
		EBT	754	27.2	C	894	14.4	B	1187	12.2	B
		EBR	58			94			105		
		WBL	399	40.1	D	218	48.4	D	506	48.6	D
		WBT	1171	14.1	B	754	4.9	A	900	17.9	B
		WBR	66			89			174		
		NBL	63	65.1	E	66	58.6	E	92	68.8	E
		NBT									
		NBR	824	23.9	C	477	20.8	C	697	17.8	B
		SBL	37	46.7	D	70	58.7	E	101	40.6	D
SBT	225	29.6	C	232	33.3	C	526	48.0	D		
SBR	89	27.2	C	161	32.2	C	167	39.3	D		
4	04/25/13	US 36 E. Ramp & Baseline Rd.		30.8	C		20.4	C		26.3	C
		EBL	239	46.3	D	330	43.3	D	345	52.5	D
		EBT	960	10.4	B	774	7.3	A	1118	4.8	A
		EBR									
		WBL									
		WBT	891	9.7	A	830	17.3	B	1255	23.7	C
		WBR	41			81			86		
		NBL	704	82.0	F	386	32.5	C	442	54.4	D
		NBT	14	77.0	E	10	32.5	C	22	55.2	E
		NBR	268	35.2	D	130	28.9	C	184	40.3	D
		SBL									
SBT											
SBR											
5	04/04/13	30th St. & Baseline Rd.		30.7	C		24.0	C		23.2	C
		EBL	644	46.3	D	372	22.6	C	420	16.7	B
		EBT	546	20.0	C	517	22.6	C	714	16.3	B
		EBR	28			42			68		
		WBL	30	22.2	C	68	24.0	C	80	12.2	B
		WBT	653	37.6	D	512	27.3	C	608	19.6	B
		WBR	250	27.8	C	195	23.1	C	180	15.2	B
		NBL	48	23.6	C	96	23.0	C	157	32.8	C
		NBT	37	26.4	C	72	27.4	C	79	37.6	D
		NBR	21			47			56		
		SBL	155	22.0	C	177	21.8	C	369	36.4	D
SBT	44	25.7	C	105	28.4	C	149	43.0	D		
SBR	225	16.5	B	259	20.8	C	483	25.4	C		

Attachment A: Draft 2015 Signalized Intersection Level of Service Report

ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
6	09/03/14	Broadway & 20th St./Regent		17.6	B		14.9	B		25.2	C
		EBL	28	34.6	C	33	28.6	C	36	39.7	D
		EBT	30	41.4	D	26	29.8	C	62	40.3	D
		EBR	34			17			22		
		WBL	32	29.9	C	101	32.7	C	214	80.8	F
		WBT	13	29.2	C	42	30.0	C	60	37.7	D
		WBR	102	31.6	C	164	34.1	C	203	44.0	D
		NBL									
		NBT	1418	21.7	C	919	7.2	A	1059	17.2	B
		NBR	324	0.3	A	136	0.1	A	174	0.1	A
		SBL	94	48.6	D	134	56.4	E	194	100.1	F
		SBT	758	7.4	A	862	7.9	A	1486	10.6	B
SBR	24			30			37				
7	04/28/10	Broadway & Euclid Ave		2.1	A		3.8	A		1.0	A
		EBL									
		EBT									
		EBR									
		WBL									
		WBT									
		WBR	11	45.5	D	37	44.0	D			
		NBL									
		NBT	1319	1.9	A	1010	2.1	A	1274	1.7	A
		NBR	40	0.9	A	68	1.4	A	46	0.8	A
		SBL	48	4.4	A	82	2.3	A	99	1.9	A
		SBT	796	0.2	A	967	0.2	A	1442	0.4	A
SBR											
8	10/16/12	Broadway & College Ave.		2.9	A		5.8	A		8.6	A
		EBL									
		EBT									
		EBR	62	43.2	D	115	40.0	D	139	51.4	D
		WBL									
		WBT									
		WBR									
		NBL	47	40.1	D	95	42.6	D	94	65.7	E
		NBT	1174	0.3	A	773	0.1	A	1021	1.6	A
		NBR									
		SBL									
		SBT	709	0.4	A	740	0.9	A	1249	4.4	A
SBR	5			29			19				
9	10/16/12	Broadway & Pennsylvania Ave.		6.3	A		8.2	A		9.1	A
		EBL	66	35.4	D	141	33.2	C	140	43.3	D
		EBT									
		EBR	14			48			62		
		WBL									
		WBT									
		WBR									
		NBL									
		NBT	1187	6.2	A	790	5.9	A	971	5.2	A
		NBR									
		SBL									
		SBT	694	2.7	A	721	3.6	A	1057	4.9	A
SBR											
10	10/17/12	Broadway & University Ave.		16.4	B		18.2	B		26.8	C
		EBL	29	41.1	D	40	41.5	D	37	41.7	D
		EBT	78	42.7	D	87	42.9	D	112	43.6	D
		EBR	106	40.0	D	106	39.6	D	131	40.9	D
		WBL	100	44.4	D	129	44.0	D	244	55.1	E
		WBT	50	31.1	C	66	30.5	C	78	29.0	C
		WBR	12			22			39		
		NBL	107	7.2	A	53	9.1	A	91	30.6	C
		NBT	970	9.7	A	685	11.2	B	953	18.0	B
		NBR	201			173			234		
		SBL	18	13.7	B	30	11.4	B	22	17.1	B
		SBT	578	13.8	B	636	12.9	B	1047	25.1	C
SBR	38			35			29				

Attachment A: Draft 2015 Signalized Intersection Level of Service Report

ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
11	10/17/12	Broadway & Arapahoe Rd.		17.0	B		15.8	B		27.2	C
		EBL	31	19.4	B	69	17.5	B	102	25.4	C
		EBT	131	25.6	C	177	23.8	C	238	40.8	D
		EBR	21			48			79		
		WBL	48	18.1	B	91	10.7	B	137	31.2	C
		WBT	145	23.8	C	196	17.7	B	276	36.4	D
		WBR	70	25.9	C	98	22.5	C	109	97.5	F
		NBL	42	16.7	B	53	17.2	B	67	19.9	B
		NBT	814	23.3	C	586	21.0	C	835	22.9	C
		NBR	114			118			145		
		SBL	110	10.2	B	109	9.2	A	72	18.9	B
		SBT	564	4.5	A	560	7.4	A	854	16.1	B
		SBR	58			117			107		
12	10/21/14	Folsom Ave. & Arapahoe Rd.		25.5	C		22.1	C		26.6	C
		EBL	91	9.7	A	70	10.4	B	99	14.9	B
		EBT	422	10.1	B	468	14.7	B	749	17.0	B
		EBR	39			48			73		
		WBL	46	10.5	B	80	5.4	A	96	21.9	C
		WBT	467	10.8	B	488	8.0	A	623	16.2	B
		WBR	252	16.8	B	263	11.0	B	293	3.9	A
		NBL	52	38.3	D	65	39.8	D	109	40.2	D
		NBT	231	38.4	D	192	39.8	D	302	39.3	D
		NBR	61			89			118		
		SBL	278	65.0	E	293	48.8	D	463	61.3	E
		SBT	169	46.8	D	131	32.7	C	313	30.0	C
		SBR	63			65			85		
13	09/16/14	26th St. & Arapahoe Rd.		7.9	A		15.8	A		16.5	B
		EBL	18	8.7	A	42	16.4	B	62	14.9	B
		EBT	708	9.9	A	788	21.6	C	1158	21.8	C
		EBR	17			26			44		
		WBL	21	2.5	A	117	4.5	A	70	5.1	A
		WBT	774	2.1	A	722	5.7	A	817	1.9	A
		WBR	37			152			118		
		NBL	40	32.6	C	73	29.0	C	99	36.2	D
		NBT	3	31.5	C	24	27.3	C	12	32.6	C
		NBR	3	31.3	C	47	27.1	C	57	32.7	C
		SBL	44	32.8	C	140	30.8	C	132	36.7	D
		SBT		31.4	C	27	27.6	C	23	33.1	C
		SBR	11			40			56		
14	04/30/13	28th St. & Arapahoe Rd.		32.2	C		33.0	C		66.1	E
		EBL	83	34.6	C	181	31.1	C	199	37.0	D
		EBT	510	16.6	B	658	19.5	B	825	35.5	D
		EBR	212			279			400		
		WBL	176	39.3	D	263	48.8	D	424	102.5	F
		WBT	671	42.2	D	767	42.2	D	843	48.5	D
		WBR	194	60.7	E	397	55.8	E	293	61.0	E
		NBL	301	55.9	E	269	65.9	E	270	67.1	E
		NBT	1301	16.5	B	1030	25.8	C	1241	26.1	C
		NBR	137			166			150		
		SBL	205	92.4	F	396	48.1	D	320	52.6	D
		SBT	934	33.6	C	981	22.5	C	1391	143.0	F
		SBR	69	4.2	A	159	10.5	B	95	13.9	B
15	05/14/13	29th St. & Arapahoe Rd.		6.5	A		16.0	A		14.5	B
		EBL	59	10.8	B	123	31.6	C	83	29.1	C
		EBT	705	6.5	A	1080	15.6	B	1190	11.9	B
		EBR	5			9			9		
		WBL	27	4.1	A	41	9.3	A	48	9.2	A
		WBT	1046	4.4	A	1188	10.5	B	1522	10.7	B
		WBR	55			223			193		
		NBL	4			14			21		
		NBT		32.7	C	4	29.0	C	7	35.2	D
		NBR	11			15			21		
		SBL	22			166			138		
		SBT	2	33.4	C	12	36.0	D	8	39.8	D
		SBR	27	32.7	C	133	29.2	C	136	35.2	D

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			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
16	04/08/14	30th St. & Arapahoe Rd.		24.2	C		31.5	C		36.4	D
		EBL	116	65.4	E	180	64.2	E	185	52.6	D
		EBT	530	9.6	A	941	13.5	B	915	19.3	B
		EBR	107			153			214		
		WBL	74	20.4	C	137	26.6	C	256	27.1	C
		WBT	932	6.4	A	1196	14.9	B	1165	31.3	C
		WBR	173			200			192		
		NBL	153	62.7	E	218	62.5	E	224	53.4	D
		NBT	826	35.2	D	488	31.7	C	743	47.4	D
		NBR	118			107			83		
		SBL	152	90.1	F	346	137.2	F	319	70.6	E
		SBT	371	9.7	A	349	26.9	C	633	29.6	C
		SBR	98	25.8	C	185	19.1	B	193	56.6	E
17	04/15/14	33rd Ave./33rd St. & Arapahoe Rd.		15.0	B		19.0	B		8.5	A
		EBL	79	7.7	A	107	36.6	D	65	17.3	B
		EBT	770	6.3	A	1265	4.6	A	1182	0.7	A
		EBR	1			14			10		
		WBL	2	10.9	B	20	15.2	B	10	4.6	A
		WBT	1017	19.4	B	1421	25.2	C	1328	5.3	A
		WBR	144			145			135		
		NBL	2			24			16		
		NBT		28.3	C	1	28.7	C	6	34.6	C
		NBR				2			5		
		SBL	74	30.9	C	232	38.4	D	226	44.6	D
		SBT	1	28.6	C	3	29.4	C	2	36.1	D
		SBR	55			135			150		
18	04/22/14	Marine St./38th St. & Arapahoe Rd.		10.4	B		11.6	B		14.7	B
		EBL	46	8.9	A	91	17.0	B	48	4.5	A
		EBT	740	7.1	A	1278	9.1	A	1346	3.8	A
		EBR	16			41			15		
		WBL	116	9.4	A	42	10.8	B	25	7.6	A
		WBT	1235	8.3	A	1427	8.6	A	1334	6.7	A
		WBR	480	12.4	B	154	5.4	A	101	3.7	A
		NBL	6	29.2	C	27	30.2	C	23	36.0	D
		NBT	10	29.1	C	13	29.2	C	2	34.6	C
		NBR	36	29.2	C	53	29.3	C	125	37.9	D
		SBL	82	30.4	C	170	31.6	C	422	53.6	D
		SBT		29.1	C	8	29.8	C		36.6	D
		SBR	27			104			124		
19	04/16/14	Foothills Pkwy & Arapahoe Rd.		47.5	D		23.3	D		62.5	E
		EBL	149	44.0	D	252	90.7	F	354	159.1	F
		EBT	505	24.2	C	985	26.6	C	1167	55.4	E
		EBR	131	0.1	A	299	0.3	A	419	0.4	A
		WBL	211	46.2	D	250	46.3	D	448	196.9	F
		WBT	1076	26.1	C	1045	22.3	C	887	40.5	D
		WBR	339	0.3	A	343	0.4	A	507	0.8	A
		NBL	334	71.2	E	215	60.7	E	193	56.2	E
		NBT	1388	97.9	F	894	19.6	B	1577	107.6	F
		NBR	364	0.2	A	255	0.2	A	269	0.3	A
		SBL	390	179.5	F	304	61.3	E	345	132.4	F
		SBT	1355	17.7	B	977	16.4	B	1553	21.5	C
		SBR	425	0.2	A	442	0.5	A	427	0.2	A
20	04/17/14	Eisenhower St./Commerce St. & Arapahoe Rd.		5.5	A		6.6	A		9.0	A
		EBL	51	13.0	B	39	2.3	A	15	3.0	A
		EBT	848	1.7	A	1343	2.9	A	1619	7.4	A
		EBR	23			41			83		
		WBL	23	4.3	A	28	6.3	A	41	21.0	C
		WBT	1392	4.4	A	1261	7.4	A	1265	6.9	A
		WBR	86			13			7		
		NBL	53	33.6	C	45	33.4	C	27	34.1	C
		NBT	3	32.4	C		32.1	C	1	33.3	C
		NBR	49			24			30		
		SBL	5			18			53		
		SBT		32.1	C		32.8	C	1	34.9	C
		SBR	21	32.0	C	35	32.2	C	46	33.3	C

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21	04/23/14	55th St. & Arapahoe Rd.		41.4	D		28.6	D		36.6	D
		EBL	216	37.9	D	333	53.1	D	244	105.1	F
		EBT	408	20.9	C	756	21.9	C	1320	40.0	D
		EBR	60			102			182		
		WBL	43	20.5	C	47	28.1	C	85	31.7	C
		WBT	1167	59.0	E	764	30.3	C	725	17.4	B
		WBR	391			173			196		
		NBL	224	33.3	C	141	24.1	C	111	40.5	D
		NBT	551	33.1	C	172	28.1	C	176	28.6	C
		NBR	54			33			49		
		SBL	159	25.3	C	205	24.5	C	633	31.4	C
		SBT	141	29.9	C	138	30.0	C	458	47.1	D
		SBR	178	18.1	B	320	22.5	C	292	26.2	C
22	04/24/14	Cherryvale Rd. & Arapahoe Rd.		50.5	D		13.7	D		12.8	B
		EBL	58	31.4	C	66	14.8	B	29	6.6	A
		EBT	426	18.7	B	750	14.8	B	1330	8.1	A
		EBR	87	33.7	C	111	30.7	C	525	7.7	A
		WBL	39	3.5	A	27	2.4	A	40	19.4	B
		WBT	1050	7.1	A	699	2.1	A	633	9.8	A
		WBR	27			14			10		
		NBL	585			151			144		
		NBT	34	168.3	F	9	33.6	C	6	45.2	D
		NBR	75	20.0	B	43	28.4	C	49	33.9	C
		SBL	13			20			42		
		SBT	7	19.7	B	5	28.6	C	39	38.9	D
		SBR	40	19.3	B	60	28.2	C	66	34.2	C
23	10/31/12	28th St. & Canyon Blvd.		29.4	C		56.2	C		87.5	F
		EBL	139	34.2	C	153	47.1	D	180	69.6	E
		EBT	159	19.2	B	198	35.1	D	210	58.0	E
		EBR	247	0.2	A	85	0.1	A	78	33.8	C
		WBL	51	49.1	D	315	103.4	F	339	152.2	F
		WBT	100	30.9	C	274	38.3	D	329	65.3	E
		WBR	26	30.3	C	383	40.2	D	602	274.1	F
		NBL	443	29.9	C	163	24.0	C	135	23.9	C
		NBT	878	10.9	B	842	8.7	A	1043	7.3	A
		NBR	62			248			292		
		SBL	56	36.4	D	323	214.6	F	323	250.3	F
		SBT	825	42.0	D	946	52.8	D	1141	52.5	D
		SBR	190	97.5	F	109	188.9	F	126	122.2	F
24	07/25/12	28th St. & Walnut St.		7.7	A		19.1	A		22.0	C
		EBL	7	29.2	C	93	33.0	C	85	31.0	C
		EBT	32	28.9	C	94	30.4	C	102	36.0	D
		EBR	8	28.2	C	90	28.7	C	78	34.3	C
		WBL	38	29.0	C	155	30.4	C	132	30.0	C
		WBT	45	29.0	C	126	31.5	C	116	36.2	D
		WBR	68	29.4	C	230	32.6	C	191	37.7	D
		NBL	90	2.1	A	186	32.7	C	125	33.9	C
		NBT	999	3.6	A	1346	15.4	B	1375	21.3	C
		NBR	57			117			87		
		SBL	116	13.3	B	177	25.2	C	105	49.0	D
		SBT	883	6.0	A	1128	11.2	B	1261	11.2	B
		SBR	29			101			72		
25	07/17/12	28th St. & Pearl St.		15.2	B		27.7	B		32.5	C
		EBL	72	23.4	C	187	28.2	C	225	28.2	C
		EBT	323	25.7	C	568	35.9	D	628	51.6	D
		EBR	107			163			184		
		WBL	127	12.2	B	319	28.9	C	272	30.3	C
		WBT	452	12.6	B	590	15.0	B	557	40.4	D
		WBR	55	27.0	C	156	3.7	A	169	98.2	F
		NBL	178	15.9	B	238	22.5	C	216	24.1	C
		NBT	728	11.9	B	1089	25.3	C	1188	22.2	C
		NBR	151	5.3	A	366	11.7	B	301	9.3	A
		SBL	112	9.6	A	261	23.1	C	217	22.9	C
		SBT	856	14.0	B	1028	36.6	D	1004	27.6	C
		SBR	92	19.9	B	116	82.6	F	87	18.4	B

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26	04/24/13	28th St. & Mapleton Ave.		7.1	A		8.2	A		12.8	B
		EBL	29	37.3	D	55	35.0	D	87	56.0	E
		EBT	19	37.4	D	18	33.3	C	42	40.3	D
		EBR	30			14			29		
		WBL	17	37.8	D	47	35.5	D	54	40.9	D
		WBT	23	37.3	D	32	34.0	C	57	43.1	D
		WBR	32			82			116		
		NBL	29	5.7	A	27	2.0	A	43	4.3	A
		NBT	753	5.4	A	1258	3.8	A	1483	9.5	A
		NBR	24			65			70		
		SBL	55	2.9	A	43	7.4	A	69	22.6	C
		SBT	1168	3.5	A	1156	6.5	A	1190	4.9	A
		SBR	19			37			36		
27	10/18/12	28th St. & Valmont Rd.		23.0	C		32.7	C		44.0	D
		EBL	64	18.4	B	85	17.4	B	156	27.9	C
		EBT	404	20.6	C	340	17.2	B	385	21.8	C
		EBR	91			98			102		
		WBL	109	20.1	C	191	135.4	F	186	52.4	D
		WBT	373	16.2	B	331	20.4	C	475	35.5	D
		WBR				262	10.8	B	280	40.2	D
		NBL	92	50.5	D	109	35.2	D	118	37.3	D
		NBT	608	9.5	A	981	20.3	C	1262	72.6	E
		NBR	112			184			101		
		SBL	192	17.0	B	192	99.2	F	164	59.7	E
		SBT	1076	33.4	C	883	27.4	C	916	23.1	C
		SBR	53			69			95		
28	08/02/12	28th St. & Iris Ave./Diagonal Hwy		53.5	D		36.8	D		87.2	F
		EBL	67	28.1	C	108	29.3	C	352	74.6	E
		EBT	831	145.1	F	690	84.7	F	1157	266.8	F
		EBR	234			251			133		
		WBL	400	39.5	D	275	40.7	D	302	40.5	D
		WBT	767	28.7	C	619	30.6	C	691	50.1	D
		WBR	43		A	128	0.1	A	245	0.2	A
		NBL	112	17.1	B	278	15.3	B	389	32.5	C
		NBT	237	13.4	B	416	13.1	B	759	28.2	C
		NBR	222	0.3	A	323	0.3	A	511	0.6	A
		SBL	397	25.2	C	245	27.0	C	314	40.6	D
		SBT	898	36.0	D	584	34.0	C	679	41.0	D
		SBR	196	0.2	A	99	0.1	A	125	0.1	A
29	11/06/12	30th St. & Canyon Blvd.		12.1	B		18.0	B		22.9	C
		EBL	61	33.9	C	146	49.2	D	103	48.7	D
		EBT	49	34.5	C	136	35.7	D	136	48.9	D
		EBR	50			101			122		
		WBL	6			33			37		
		WBT	16	33.0	C	51	42.4	D	69	92.7	F
		WBR	27			87			66		
		NBL	125	5.1	A	159	16.7	B	237	22.2	C
		NBT	862	4.7	A	715	14.4	B	941	5.4	A
		NBR				1			1		
		SBL	85	13.4	B	196	9.0	A	187	14.9	B
		SBT	564	12.3	B	708	7.5	A	882	18.0	B
		SBR	58	25.3	C	144	6.4	A	93	18.7	B
30	10/01/09	30th St. & Walnut St.		9.5	A		28.7	A		26.3	C
		EBL	26	36.1	D	173	52.7	D	121	38.0	D
		EBT	50	36.6	D	183	29.2	C	75	38.7	D
		EBR	16	35.1	D	75	25.9	C	64	37.4	D
		WBL	26	36.1	D	208	80.1	F	208	45.4	D
		WBT	11	35.4	D	157	28.5	C	131	40.5	D
		WBR	97	26.6	C	261	21.2	C	345	47.6	D
		NBL	52	4.9	A	194	38.9	D	234	85.4	F
		NBT	656	6.1	A	947	23.8	C	1170	17.5	B
		NBR	93			152			80		
		SBL	289	8.4	A	367	30.4	C	251	18.0	B
		SBT	630	6.0	A	945	20.0	B	1004	8.4	A
		SBR	76	3.0	A	155	14.5	B	85	1.9	A

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36	05/22/13	14th St. & Canyon Blvd.		5.8	A		6.4	A		8.5	A
		EBL	20	3.0	A	23	1.9	A	17	1.7	A
		EBT	583	2.5	A	731	1.7	A	732	1.4	A
		EBR	29			34			57		
		WBL	46	5.0	A	32	4.8	A	72	5.2	A
		WBT	744	5.5	A	804	6.1	A	967	5.3	A
		WBR	92			46			48		
		NBL	4	27.9	C	11	23.6	C	41	30.6	C
		NBT	8	28.0	C	4	23.3	C	10	29.7	C
		NBR	4			26			85		
		SBL	1	28.5	C	56	24.0	C	94	33.5	C
		SBT	18	27.5	C	22	23.3	C	36	31.8	C
		SBR	36			72			83		
37	05/22/13	15th St. & Canyon Blvd.		8.6	A		13.0	A		10.1	B
		EBL	19	3.1	A	26	4.8	A	30	3.6	A
		EBT	559	3.5	A	780	4.8	A	828	3.0	A
		EBR	28			28			55		
		WBL	85	9.0	A	43	16.2	B	81	8.0	A
		WBT	808	8.2	A	803	19.6	B	989	7.8	A
		WBR	68			38			67		
		NBL	31			36			63		
		NBT	47	27.1	C	36	24.3	C	38	38.2	D
		NBR	34	25.4	C	49	29.3	C	59	29.4	C
		SBL	32			40			72		
		SBT	26	14.8	B	30	5.1	A	48	19.3	B
		SBR	16	2.8	A	46	1.5	A	63	31.8	C
38	05/23/13	17th St. & Canyon Blvd.		12.1	B		11.0	B		12.7	B
		EBL	25	4.1	A	23	5.5	A	23	4.8	A
		EBT	652	4.5	A	768	7.2	A	947	7.3	A
		EBR	5			21			27		
		WBL	67	10.2	B	60	12.1	B	47	8.0	A
		WBT	807	9.6	A	867	11.5	B	954	8.5	A
		WBR	22			43			39		
		NBL	45	26.4	C	27	19.9	B	15	39.5	D
		NBT	114	27.9	C	85	21.8	C	82	45.6	D
		NBR	44			49			66		
		SBL	12	24.1	C	30	17.3	B	77	32.3	C
		SBT	82	26.3	C	57	16.8	B	69	27.3	C
		SBR	35			45			47		
39	05/14/13	15th St. & Arapahoe Rd.		10.8	B		7.1	B		8.8	A
		EBL	33	3.8	A	31	3.5	A	25	0.9	A
		EBT	321	4.6	A	421	4.2	A	404	1.2	A
		EBR	24			7			27		
		WBL	27	3.3	A	14	1.3	A	32	2.1	A
		WBT	402	4.2	A	451	2.3	A	457	2.8	A
		WBR	62			48			50		
		NBL	5			7			10		
		NBT	12	30.1	C	2	25.2	C	13	37.2	D
		NBR	17			19			42		
		SBL	60	34.3	C	36	29.7	C	44	41.0	D
		SBT	7	38.1	D	5	36.9	D	15	42.7	D
		SBR	48			47			56		
40	04/24/13	17th St. & Arapahoe Rd.		16.2	B		17.8	B		25.2	C
		EBL	26	9.4	A	19	9.9	A	26	14.2	B
		EBT	244	11.4	B	389	14.1	B	481	22.5	C
		EBR	15			21			22		
		WBL	186	3.9	A	177	11.2	B	206	15.3	B
		WBT	400	4.5	A	468	11.8	B	500	9.5	A
		WBR	34			44			33		
		NBL	10	28.7	C	25	24.7	C	36	27.0	C
		NBT	64	36.9	D	89	30.4	C	123	47.6	D
		NBR	168			195			271		
		SBL	11	41.3	D	31	31.3	C	22	38.0	D
		SBT	105	42.0	D	96	28.9	C	132	36.7	D
		SBR	13			17			24		

Attachment A: Draft 2015 Signalized Intersection Level of Service Report

ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
41	03/21/12	Broadway & Greenbriar Blvd.		22.2	C		9.2	C		14.3	B
		EBL	331	31.1	C	141	42.4	D	230	44.7	D
		EBT									
		EBR	8	26.5	C	9	39.7	D	20	41.2	D
		WBL									
		WBT									
		WBR									
		NBL	37	17.0	B	9	5.9	A	25	10.1	B
		NBT	1064	21.3	C	467	7.0	A	722	10.5	B
		NBR									
		SBL									
SBT	564	14.0	B	444	1.7	A	1116	10.0	B		
SBR	207	27.1	C	156	0.6	A	288	11.2	B		
42	05/15/12	Broadway & Hanover Ave.		14.2	B		8.0	B		9.2	A
		EBL	125	28.6	C	87	31.9	C	121	39.6	D
		EBT	56	25.9	C	25	30.0	C	44	36.1	D
		EBR	24			25			33		
		WBL	130	41.5	D	20	30.0	C	35	35.9	D
		WBT	49	26.6	C	22	30.1	C	23	35.4	D
		WBR	54			27			22		
		NBL	30	8.7	A	25	7.1	A	38	20.4	C
		NBT	1312	13.7	B	601	8.7	A	799	12.4	B
		NBR	52			10			24		
		SBL	23	21.1	C	36	1.3	A	51	1.2	A
SBT	898	3.7	A	610	0.9	A	1393	1.0	A		
SBR	32			46			51				
43	05/07/14	Broadway & Table Mesa Dr.		57.3	E		23.3	E		34.2	C
		EBL	541	137.3	F	339	46.9	D	390	82.7	F
		EBT	586	39.6	D	357	27.9	C	484	42.7	D
		EBR	31			30			62		
		WBL	409	38.8	D	296	30.6	C	467	48.3	D
		WBT	398	51.5	D	270	13.4	B	431	26.6	C
		WBR	357			150			153		
		NBL	49	30.8	C	33	21.2	C	66	35.7	D
		NBT	1068	65.5	E	509	24.3	C	575	29.0	C
		NBR	399	32.4	C	246	28.1	C	357	15.9	B
		SBL	116	47.8	D	122	9.7	A	217	25.2	C
SBT	441	43.0	D	608	20.9	C	1244	40.3	D		
SBR	229	0.2	A	279	0.2	A	536	0.7	A		
44	05/20/14	Broadway & Dartmouth Ave.		9.8	A		3.5	A		6.1	A
		EBL	86			56			59		
		EBT	2	34.7	C	2	34.0	C	3	38.8	D
		EBR	7			4			7		
		WBL	35			14			37		
		WBT	3	32.1	C	1	31.4	C	5	37.9	D
		WBR	1			2			2		
		NBL	20	6.4	A	16	1.6	A	13	12.9	B
		NBT	1802	9.1	A	918	1.4	A	957	1.1	A
		NBR	15			14			26		
		SBL	2	5.1	A	6	0.8	A	16	3.9	A
SBT	835	7.6	A	925	2.3	A	1965	6.3	A		
SBR	48			59			88				
45	06/21/11	Broadway & Alpine Ave.		7.2	A		8.9	A		10.5	B
		EBL	27	28.1	C	48	24.3	C	79	41.1	D
		EBT	71	28.8	C	88	24.1	C	109	33.6	C
		EBR	33	27.4	C	70	22.8	C	73	30.9	C
		WBL	44	29.2	C	63	24.4	C	52	34.3	C
		WBT	62	28.9	C	90	25.3	C	69	33.6	C
		WBR	38			58			63		
		NBL	76	4.7	A	56	3.6	A	20	2.1	A
		NBT	451	3.1	A	577	2.9	A	813	2.7	A
		NBR	37			61			53		
		SBL	86	2.3	A	114	6.4	A	61	4.0	A
SBT	753	1.8	A	656	4.6	A	753	3.2	A		
SBR	89			43			25				

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
46	03/29/11	Broadway & Balsam Ave.		13.0	B		18.8	B		18.3	B
		EBL	107	21.9	C	125	17.5	B	234	41.3	D
		EBT	86	27.4	C	99	22.4	C	142	32.1	C
		EBR	29			40			51		
		WBL	72	23.2	C	80	18.7	B	85	28.5	C
		WBT	93	28.8	C	120	25.0	C	162	47.4	D
		WBR	24			47			76		
		NBL	30	15.3	B	29	12.0	B	47	8.0	A
		NBT	382	15.4	B	553	11.4	B	875	9.5	A
		NBR	54			74			70		
		SBL	48	5.9	A	49	22.7	C	43	8.1	A
		SBT	817	6.0	A	647	23.1	C	670	7.8	A
		SBR	137			73			84		
47	04/01/14	Broadway & N. Boulder Rec.		6.2	A		8.5	A		12.3	B
		EBL									
		EBT									
		EBR									
		WBL	18	28.8	C	29	27.1	C	89	40.8	D
		WBT									
		WBR	19	28.2	C	26	26.5	C	66	34.3	C
		NBL									
		NBT	751	4.4	A	749	10.1	B	1273	9.9	A
		NBR	45			40			93		
		SBL	35	3.9	A	21	3.1	A	75	25.4	C
		SBT	1323	6.5	A	796	4.9	A	959	7.9	A
		SBR									
48	05/28/14	Broadway & Iris Ave.		37.7	D		59.3	D		84.0	F
		EBL									
		EBT									
		EBR									
		WBL	478	37.9	D	356	32.2	C	407	39.2	D
		WBT									
		WBR	217	19.1	B	275	17.8	B	355	31.3	C
		NBL									
		NBT	510	64.2	E	577	124.3	F	873	153.8	F
		NBR	315			327			482		
		SBL	264	49.4	D	252	26.1	C	247	40.9	D
		SBT	1014	17.3	B	605	10.2	B	632	10.8	B
		SBR									
49	04/04/12	Broadway & Linden Dr.		9.8	A		7.8	A		8.0	A
		EBL	20			16			25		
		EBT	1	26.3	C	2	21.4	C	1	31.3	C
		EBR	203	29.2	C	119	21.6	C	129	31.1	C
		WBL	11			11			12		
		WBT	2	26.0	C	2	21.2	C	3	30.8	C
		WBR	12			9			7		
		NBL	74	10.9	B	112	7.3	A	185	9.2	A
		NBT	451	7.9	A	600	5.5	A	1061	5.2	A
		NBR	10			14			20		
		SBL	6	3.4	A	7	4.3	A	12	4.8	A
		SBT	969	5.0	A	493	5.3	A	661	4.8	A
		SBR	16			17			34		
50	03/09/11	17th St. & Walnut St.		9.3	A		21.0	A		10.2	B
		EBL	9			84			17		
		EBT	63	8.8	A	206	35.5	D	207	11.2	B
		EBR	10	12.9	B	41	29.9	C	52	16.4	B
		WBL	46			39			53		
		WBT	32	16.1	B	64	22.3	C	48	12.6	B
		WBR	1			7			16		
		NBL	13			18			10		
		NBT	101	7.6	A	115	7.8	A	152	8.7	A
		NBR	22			24			40		
		SBL	2			9			12		
		SBT	71	4.0	A	100	8.7	A	128	6.2	A
		SBR	9			30			9		

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
51	06/23/11	17th St. & Pearl St.		6.4	A		8.7	A		9.8	A
		EBL	7	3.3	A	5	5.8	A	5	5.4	A
		EBT	114	3.7	A	243	9.9	A	360	8.4	A
		EBR	7			11			25		
		WBL	54	3.6	A	69	6.5	A	88	9.1	A
		WBT	234	4.7	A	354	11.0	B	310	10.7	B
		WBR	17			38			46		
		NBL	3			12			13		
		NBT	26	13.6	B	65	3.9	A	71	10.2	B
		NBR	34			69			79		
		SBL	7			20			24		
		SBT	27	13.5	B	29	7.6	A	36	12.4	B
		SBR	4			12			10		
52	06/04/14	20th St. & Pearl St.		9.9	A		10.9	A		14.5	B
		EBL	11	3.9	A	19	2.3	A	28	7.8	A
		EBT	160	4.7	A	281	3.6	A	485	16.8	B
		EBR	5			10			3		
		WBL	16	3.8	A	23	4.7	A	25	8.4	A
		WBT	341	6.3	A	454	8.3	A	417	15.1	B
		WBR	31			48			73		
		NBL	5			2			3		
		NBT	19	13.9	B	21	24.5	C	33	10.5	B
		NBR	4			12			18		
		SBL	58			108			120		
		SBT	39	20.2	C	41	26.3	C	63	12.2	B
		SBR	22	68.0	E	38	25.6	C	31	9.6	A
53	08/26/14	20th St. & Pine St.		19.8	B		14.7	B		23.7	C
		EBL	18			13			36		
		EBT	181	7.5	A	213	6.3	A	283	34.5	C
		EBR	25			29			29		
		WBL	6			8			8		
		WBT	173	7.1	A	184	6.1	A	218	27.7	C
		WBR	23			27			40		
		NBL	2			7			8		
		NBT	82	25.8	C	84	28.1	C	160	11.3	B
		NBR	13			8			14		
		SBL	41			31			31		
		SBT	199	37.6	D	138	29.4	C	152	11.2	B
		SBR	27	24.5	C	23	23.3	C	25	9.4	A
54	05/29/14	19th St. & Iris Ave.		22.1	C		15.9	C		22.4	C
		EBL	27	13.4	B	15	7.1	A	31	16.1	B
		EBT	586	13.1	B	647	8.7	A	724	15.6	B
		EBR	23			18			30		
		WBL	169	25.4	C	73	10.1	B	71	13.8	B
		WBT	748	19.6	B	607	10.7	B	801	17.0	B
		WBR	94			167			194		
		NBL	18	31.1	C	23	29.3	C	26	36.3	D
		NBT	84	34.8	C	84	32.1	C	113	52.9	D
		NBR	80			66			122		
		SBL	239	37.8	D	173	43.9	D	168	35.6	D
		SBT	168	26.0	C	76	30.7	C	82	26.4	C
		SBR	51			23			31		
55	08/07/14	Folsom Ave. & Canyon Blvd.		65.5	E		63.8	E		53.5	D
		EBL	98	30.1	C	156	45.7	D	162	46.3	D
		EBT	453	32.2	C	792	36.2	D	763	53.7	D
		EBR	104	27.7	C	178	27.6	C	225	36.1	D
		WBL	25	39.7	D	71	29.1	C	76	21.9	C
		WBT	696	62.5	E	638	39.1	D	775	44.4	D
		WBR	35			72			46		
		NBL	418	223.5	F	521	262.6	F	478	166.4	F
		NBT	262	17.9	B	489	23.6	C	517	30.0	C
		NBR	32			94			63		
		SBL	75	19.6	B	55	12.3	B	73	17.2	B
		SBT	266	23.0	C	375	15.6	B	516	21.9	C
		SBR	189			181			193		

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
56	06/30/11	Folsom Ave. & Pearl St.		23.7	C		36.6	C		31.4	C
		EBL	25	31.7	C	73	23.8	C	100	45.5	D
		EBT	261	31.2	C	481	29.4	C	480	37.0	D
		EBR	35			84			76		
		WBL	112	45.6	D	146	31.9	C	144	22.9	C
		WBT	334	49.5	D	446	44.7	D	461	38.3	D
		WBR	109	74.3	E	175	89.9	F	219	12.7	B
		NBL	55	7.4	A	155	21.7	C	108	21.1	C
		NBT	318	6.5	A	491	36.6	D	693	35.8	D
		NBR	76			224			108		
		SBL	174	9.1	A	185	29.4	C	207	47.5	D
		SBT	563	7.9	A	474	29.3	C	525	16.9	B
		SBR	44			56			42		
57	06/10/14	Folsom Ave. & Pine St.		13.2	B		13.5	B		20.5	C
		EBL	37			50			119		
		EBT	46	40.3	D	86	43.0	D	86	72.0	E
		EBR	100	37.2	D	128	37.7	D	154	38.7	D
		WBL	8			13			15		
		WBT	70	38.5	D	62	38.0	D	95	39.2	D
		WBR	21	36.3	D	25	35.8	D	40	36.3	D
		NBL	73			118			123		
		NBT	255	3.4	A	504	4.4	A	685	7.5	A
		NBR	4			17			9		
		SBL	12			24			15		
		SBT	641	5.7	A	488	5.4	A	573	11.1	B
		SBR	61			52			55		
58	07/09/13	Folsom Ave. & Valmont Rd.		25.6	C		24.3	C		31.4	C
		EBL	18	32.2	C	53	34.9	C	45	42.2	D
		EBT	290	35.7	D	291	36.0	D	398	46.2	D
		EBR	36			54			54		
		WBL	132	40.5	D	181	40.4	D	182	49.8	D
		WBT	289	45.5	D	320	42.8	D	350	52.4	D
		WBR	42			59			76		
		NBL	36	8.6	A	77	8.9	A	119	13.1	B
		NBT	158	8.9	A	378	10.6	B	591	19.7	B
		NBR	111	8.4	A	158	6.0	A	229	14.7	B
		SBL	45	10.6	B	42	11.8	B	42	16.5	B
		SBT	437	10.9	B	282	10.5	B	328	15.2	B
		SBR	36			43			44		
59	06/11/14	Folsom Ave. & Iris Ave.		14.4	B		21.2	B		20.7	C
		EBL	19	11.7	B	42	17.4	B	52	21.8	C
		EBT	711	16.9	B	782	22.2	C	999	28.4	C
		EBR	114			94			97		
		WBL	269	19.7	B	162	9.1	A	223	43.7	D
		WBT	854	2.6	A	696	5.2	A	868	1.9	A
		WBR	31			66			93		
		NBL	72	28.5	C	204	56.6	E	210	41.2	D
		NBT	48	25.4	C	119	28.4	C	174	20.5	C
		NBR	106	8.4	A	167	32.3	C	258	11.7	B
		SBL	75	35.1	D	60	31.2	C	43	33.3	C
		SBT	117	36.9	D	71	31.3	C	69	33.5	C
		SBR	45			40			42		
60	05/02/13	Colorado Ave. & Folsom Ave.		22.0	C		22.6	C		23.6	C
		EBL	41	2.0	A	62	2.8	A	82	4.7	A
		EBT	79	1.9	A	125	2.7	A	190	4.6	A
		EBR									
		WBL									
		WBT	150	6.4	A	134	10.7	B	170	7.5	A
		WBR	258	7.4	A	186	11.4	B	299	8.7	A
		NBL									
		NBT									
		NBR									
		SBL	150	54.6	D	190	51.5	D	359	51.1	D
		SBT									
		SBR	103			72			67		

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			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	
66	06/11/13	Broadway & Pearl St.		4.2	A		4.6	A		2.8	A	
		EBL										
		EBT										
		EBR										
		WBL										
		WBT										
		WBR										
		NBL										
		NBT	717	5.1	A	571	5.1	A	860	2.8	A	
		NBR										
67	05/23/13	Broadway & Spruce St.		9.3	A		8.1	A		9.7	A	
		EBL										
		EBT										
		EBR										
		WBL	47			111			157			
		WBT	156	21.8	C	230	17.4	B	230	25.2	C	
		WBR	58			109			158			
		NBL	57	7.2	A	139	9.6	A	154	13.5	B	
		NBT	761	2.8	A	708	3.9	A	852	2.7	A	
		NBR										
68	06/05/13	Broadway & Pine St.		11.6	B		9.9	B		16.6	B	
		EBL	15			24			34			
		EBT	80	30.8	C	88	25.2	C	122	35.3	D	
		EBR	14			24			53			
		WBL	36			41			68			
		WBT	59	29.0	C	62	27.5	C	108	60.7	E	
		WBR	46			73			84			
		NBL	4	7.2	A	12	6.8	A	19	5.5	A	
		NBT	598	10.2	B	651	9.2	A	863	6.5	A	
		NBR	64			113			131			
69	06/06/13	11th St. & Pearl St.		9.1	A		9.9	A		9.1	A	
		EBL										
		EBT										
		EBR	56	35.3	D	96	28.5	C	86	35.8	D	
		WBL										
		WBT										
		WBR										
		NBL										
		NBT										
		NBR										
70	08/13/14	11th St. & Walnut St.		19.1	B		22.5	B		25.8	C	
		EBL										
		EBT	56	28.9	C	151	30.1	C	187	28.9	C	
		EBR	14			26			34			
		WBL										
		WBT										
		WBR										
		NBL	19	15.6	B	24	17.9	B	23	21.8	C	
		NBT										
		NBR	70	15.7	B	61	17.5	B	87	21.4	C	
70	08/13/14		SBL	94	15.6	B	222	17.9	B	296	25.4	C
		SBT	29	16.8	B	27	19.9	B	55	25.3	C	
		SBR	27			33			73			

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			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
71	08/06/14	13th St. & Walnut St.		15.9	B		17.0	B		16.5	B
		EBL				29			88		
		EBT	267	2.0	A	367	15.0	B	523	13.4	B
		EBR									
		WBL									
		WBT									
		WBR									
		NBL									
		NBT	40	50.6	D	61	24.7	C	49	34.7	C
		NBR	63			51			38		
		SBL	1	33.9	C	23	10.0	A	22	15.3	B
		SBT				3					
		SBR									
72	05/14/14	14th St. & Walnut St.		19.0	B		12.5	B		12.4	B
		EBL									
		EBT	319	17.7	B	385	11.2	B	579	10.8	B
		EBR	1			6			1		
		WBL									
		WBT									
		WBR									
		NBL									
		NBT									
		NBR	34	30.3	C	15	32.6	C	28	39.0	D
		SBL				8	21.8	C			
		SBT				1	19.0	B	1	21.5	C
		SBR									
73	08/19/14	15th St. & Walnut St.		10.1	B		13.6	B		9.2	A
		EBL	158	2.0	A	237	0.4	A	296	0.6	A
		EBT	65	3.1	A	176	18.2	B	224	8.4	A
		EBR	68			135			181		
		WBL	10	15.0	B	26	29.8	C	33	18.8	B
		WBT									
		WBR	28	17.1	B	42	19.3	B	29	15.4	B
		NBL									
		NBT	86	28.5	C	74	18.9	B	99	30.0	C
		NBR	12	25.8	C	18	21.2	C	16	30.7	C
		SBL									
		SBT									
		SBR									
74	06/12/13	15th St. & Pearl St.		20.1	C		16.4	C		26.5	C
		EBL									
		EBT									
		EBR									
		WBL									
		WBT									
		WBR	173	25.5	C	242	20.5	C	265	47.9	D
		NBL									
		NBT	122	10.5	B	166	12.6	B	216	8.5	A
		NBR	91	24.3	C	254	14.2	B	330	19.0	B
		SBL									
		SBT									
		SBR									
75	06/12/13	14th St. & Spruce St.		9.4	A		10.5	A		11.4	B
		EBL									
		EBT									
		EBR									
		WBL	56			62			140		
		WBT	248	6.6	A	449	8.3	A	575	8.1	A
		WBR									
		NBL									
		NBT									
		NBR									
		SBL									
		SBT	42	25.4	C	31	20.8	C	56	30.2	C
		SBR	13	24.4	C	43	20.1	C	30	27.8	C

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
76	06/13/13	13th St. & Spruce St.		10.4	B		10.1	B		13.1	B
		EBL									
		EBT									
		EBR									
		WBL									
		WBT	208	3.3	A	391	4.3	A	443	12.0	B
		WBR	31			69			68		
		NBL	20	28.6	C	61	19.7	B	57	15.0	B
		NBT	23	29.0	C	89	20.9	C	77	15.9	B
		NBR									
		SBL									
		SBT									
		SBR	42	28.7	C	77	20.0	B	70	15.2	B
77	03/16/10	Mohawk Dr. & Baseline Rd.		13.7	B		17.0	B		21.0	C
		EBL	17	13.3	B	41	14.4	B	67	16.7	B
		EBT	518	14.8	B	737	17.1	B	874	17.8	B
		EBR	86	12.6	B	145	13.5	B	152	17.8	B
		WBL	209	4.5	A	169	10.5	B	209	27.7	C
		WBT	629	3.6	A	606	4.2	A	599	10.5	B
		WBR	41			42			84		
		NBL	187	34.1	C	251	39.8	D	191	42.0	D
		NBT	8	26.9	C	41	27.9	C	47	33.8	C
		NBR	142	27.6	C	182	27.8	C	162	33.5	C
		SBL	83	28.9	C	41	28.1	C	91	35.5	D
		SBT	13	27.4	C	21	27.4	C	21	33.2	C
		SBR	22			19			24		
78	07/10/12	Foothills Pkwy & Baseline Rd.		60.6	E		30.8	E		65.3	E
		EBL	274	161.1	F	280	61.6	E	367	256.0	F
		EBT	286	15.6	B	354	17.0	B	541	29.1	C
		EBR	138	1.3	A	199	2.9	A	248	17.9	B
		WBL	177	64.5	E	136	39.1	D	257	110.4	F
		WBT	465	22.9	C	350	28.0	C	344	34.0	C
		WBR	210	10.5	B	129	72.4	E	101	101.3	F
		NBL	147	51.0	D	135	48.7	D	150	112.2	F
		NBT	1637	116.9	F	1051	36.2	D	1297	71.5	E
		NBR	260	22.3	C	125	21.5	C	161	23.0	C
		SBL	88	80.3	F	134	105.3	F	239	114.7	F
		SBT	1025	14.8	B	1115	17.4	B	1491	27.5	C
		SBR	259	13.1	B	267	12.4	B	222	4.6	A
79	05/15/14	Manhattan Dr./Crescent Dr. & Baseline Rd.		18.6	B		10.9	B		8.7	A
		EBL	56	9.6	A	40	7.1	A	126	3.1	A
		EBT	562	10.2	B	425	7.8	A	620	1.6	A
		EBR	157			64			209		
		WBL	32	4.6	A	25	3.8	A	45	4.5	A
		WBT	691	5.9	A	412	4.2	A	546	4.6	A
		WBR	12			2			11		
		NBL	252	69.2	E	100	34.3	C	122	39.8	D
		NBT	32	30.3	C	4	31.7	C	29	35.1	D
		NBR	52			35			34		
		SBL	4	29.0	C	7	31.9	C	12	34.4	C
		SBT	12	29.4	C	10	32.1	C	24	34.8	C
		SBR	34			21			27		
80	04/03/12	9th St. & Arapahoe Rd.		10.6	B		11.4	B		12.9	B
		EBL	19	30.5	C	14	25.4	C	22	35.1	D
		EBT	45	30.9	C	50	26.0	C	57	33.8	C
		EBR	7			17			18		
		WBL	14	21.2	C	37	22.6	C	80	24.3	C
		WBT	54	20.6	C	67	23.5	C	78	24.8	C
		WBR	58			98			140		
		NBL	15	3.6	A	14	4.1	A	13	4.1	A
		NBT	307	5.0	A	256	5.3	A	292	5.7	A
		NBR	31			39			50		
		SBL	50	6.0	A	69	5.3	A	87	4.4	A
		SBT	183	6.3	A	225	6.0	A	371	5.1	A
		SBR	10			19			22		

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
81	08/20/14	9th St. & Canyon Blvd.		16.9	B		12.1	B		27.3	C
		EBL	46	36.7	D	59	37.3	D	53	52.0	D
		EBT	451	23.4	C	436	19.9	B	486	26.1	C
		EBR	118	17.9	B	71	13.2	B	110	21.8	C
		WBL	35	16.6	B	91	16.4	B	122	56.3	E
		WBT	408	19.0	B	364	9.2	A	463	46.8	D
		WBR	170			223			263		
		NBL	30	5.3	A	34	5.4	A	62	8.5	A
		NBT	254	6.4	A	259	6.5	A	437	11.1	B
		NBR	42	4.3	A	100	3.7	A	100	6.6	A
		SBL	118	12.2	B	141	9.8	A	127	15.6	B
		SBT	179	13.1	B	255	10.2	B	383	16.1	B
		SBR	60			51			61		
82	04/21/09	9th St. & Pearl St.		13.6	B		15.1	B		25.1	C
		EBL	67			84			117		
		EBT	22	36.4	D	42	35.8	D	41	76.4	E
		EBR	59			63			71		
		WBL	26			57			61		
		WBT	29	28.8	C	53	25.1	C	48	40.0	D
		WBR	11			32			29		
		NBL	35	6.9	A	69	6.6	A	45	8.6	A
		NBT	329	9.2	A	411	10.9	B	546	14.8	B
		NBR	50			89			147		
		SBL	14	4.2	A	47	6.3	A	42	7.8	A
		SBT	528	8.7	A	479	10.1	B	591	14.3	B
		SBR	65			55			76		
83	04/11/12	9th St. & College Ave.		6.3	A		5.3	A		5.8	A
		EBL	45			18			31		
		EBT	25	12.5	B	16	11.5	B	21	14.1	B
		EBR	14			5			20		
		WBL	5			8			9		
		WBT	13	11.6	B	19	11.5	B	25	13.8	B
		WBR	30			63			58		
		NBL	33			9			8		
		NBT	367	5.0	A	226	3.3	A	307	3.2	A
		NBR	11			10			10		
		SBL	27			48			47		
		SBT	320	4.9	A	216	3.5	A	420	3.9	A
		SBR	25			19			11		
84	04/12/12	9th St. & Walnut St.		7.0	A		9.2	A		10.4	B
		EBL	10			19			20		
		EBT	12	34.2	C	29	27.6	C	35	38.8	D
		EBR	26			71			94		
		WBL	5	27.2	C	29	23.3	C	32	24.9	C
		WBT	7	23.2	C	7	16.1	B	13	10.1	B
		WBR	12			34			36		
		NBL	65	2.5	A	83	3.4	A	68	4.2	A
		NBT	425	3.4	A	421	5.2	A	461	5.8	A
		NBR	103			100			156		
		SBL	43	5.4	A	46	6.0	A	66	6.0	A
		SBT	387	7.0	A	339	6.3	A	508	7.9	A
		SBR	16			15			32		
85	06/05/13	6th St. & Canyon Blvd.		15.7	B		14.0	B		14.3	B
		EBL	9	6.7	A	9	7.4	A	7	6.1	A
		EBT	509	8.0	A	356	8.4	A	471	7.3	A
		EBR	32			25			61		
		WBL	184	23.6	C	132	17.4	B	114	14.7	B
		WBT	266	17.3	B	314	15.3	B	573	13.3	B
		WBR	19			33			69		
		NBL	70			7			33		
		NBT	14	25.1	C	18	18.8	B	14	28.9	C
		NBR	75	23.2	C	143	18.9	B	163	28.4	C
		SBL	12			14			33		
		SBT	18	23.5	C	12	18.7	B	12	28.8	C
		SBR	3			6			14		

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			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
91	06/06/13	Moorhead Ave & Table Mesa Dr.		9.2	A		9.3	A		9.4	A
		EBL	29	2.0	A	26	3.8	A	36	1.7	A
		EBT	995	3.2	A	784	4.9	A	1020	2.4	A
		EBR	60			40			36		
		WBL	105	16.5	B	58	7.1	A	45	4.6	A
		WBT	778	9.8	A	758	9.1	A	1242	7.9	A
		WBR	61	9.9	A	82	4.7	A	128	1.0	A
		NBL	28	25.3	C	33	25.3	C	28	35.0	D
		NBT	5	25.2	C	11	25.2	C	11	35.0	D
		NBR	93			74			92		
		SBL	105	27.1	C	76	26.4	C	120	40.6	D
		SBT	15	25.2	C	11	25.1	C	12	34.6	C
		SBR	22			35			56		
92	04/29/14	US 36 W. Ramp & Table Mesa Dr.		11.6	B		9.1	B		12.6	B
		EBL									
		EBT	1595	5.8	A	866	2.1	A	1380	4.6	A
		EBR	14			11			23	2.3	A
		WBL	8	7.9	A	8	10.3	B	11	5.9	A
		WBT	1210	16.5	B	722	12.0	B	1183	9.7	A
		WBR									
		NBL	2	29.0	C	3	29.1	C	10	39.1	D
		NBT									
		NBR	12	29.0	C	17	29.0	C	27	38.6	D
		SBL	151	30.5	C	53	29.4	C	229	42.2	D
		SBT	3	30.5	C	2	29.4	C	8	42.2	D
		SBR	98	0.1	A	109	30.3	C	177	42.9	D
93	10/29/14	Foothills W. Ramp (RTD) & Table Mesa Dr.		28.2	C		18.5	C		116.6	F
		EBL									
		EBT	1060	22.7	C	627	14.5	B	1316	36.9	D
		EBR	36	32.3	C	9	10.8	B	15	14.6	B
		WBL	10	14.7	B	4	9.2	A	8	27.1	C
		WBT	1266	28.4	C	654	10.9	B	1032	25.4	C
		WBR									
		NBL	33	46.3	D	20	46.3	D	75	390.1	F
		NBT									
		NBR	8	44.4	D	7	45.0	D	67	45.9	D
		SBL	203	21.8	C	223	27.4	C	480	44.4	D
		SBT	51	21.8	C	10	27.4	C	17	44.6	D
		SBR	479	39.6	D	396	29.4	C	727	425.5	F
94	05/01/14	US 36 E. Ramp & Table Mesa Dr.		10.6	B		10.6	B		10.6	B
		EBL									
		EBT	1060	22.7	C	627	14.5	B	1316	36.9	D
		EBR	36	32.3	C	9	10.8	B	15	14.6	B
		WBL	10	14.7	B	4	9.2	A	8	27.1	C
		WBT	1266	28.4	C	654	10.9	B	1032	25.4	C
		WBR									
		NBL	33	46.3	D	20	46.3	D	75	390.1	F
		NBT									
		NBR	8	44.4	D	7	45.0	D	67	45.9	D
		SBL	203	21.8	C	223	27.4	C	480	44.4	D
		SBT	51	21.8	C	10	27.4	C	17	44.6	D
		SBR	479	39.6	D	396	29.4	C	727	425.5	F
95	04/17/12	17th St. & Baseline Rd.		4.9	A		4.0	A		7.3	A
		EBL	2			4			4		
		EBT	523	4.0	A	458	3.8	A	705	10.3	B
		EBR	1			5			5		
		WBL	9			9			6		
		WBT	608	3.6	A	514	2.2	A	637	2.9	A
		WBR	49			30			22		
		NBL	7			6			6		
		NBT		19.3	B	1	19.5	B		17.7	B
		NBR	10			9			4		
		SBL	28			18			33		
		SBT	1	20.2	C	1	19.8	B		17.9	B
		SBR	4			5			6		

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96	10/18/12	20th St. & Baseline Rd.		13.1	B		16.8	B		16.1	B
		EBL	16			10			8		
		EBT	545	3.8	A	515	8.4	A	713	13.8	B
		EBR	9			7			6		
		WBL	28			26			33		
		WBT	689	18.1	B	511	26.5	C	656	17.0	B
		WBR	58			41			74		
		NBL	15			7			16		
		NBT	20	18.7	B	16	12.6	B	16	17.6	B
		NBR	40			37			42		
		SBL	15			20			58		
		SBT	6	24.5	C	5	5.6	A	19	21.3	C
		SBR	15			24			19		
97	07/11/13	Foothills Pkwy & Colorado Ave.		8.3	A		7.7	A		19.8	B
		EBL	154	41.5	D	147	36.7	D	228	47.8	D
		EBT									
		EBR	69	0.1	A	80	0.1	A	115	0.1	A
		WBL									
		WBT									
		WBR									
		NBL	121	10.1	B	52	9.4	A	52	39.1	D
		NBT	1957	6.3	A	1341	2.3	A	1605	15.7	B
		NBR									
		SBL									
		SBT	1223	9.2	A	1354	11.5	B	2018	22.1	C
		SBR	289	1.5	A	184	0.3	A	289	11.5	B
98	04/24/12	63rd St. & Lookout Rd.		21.7	C		18.0	C		26.0	C
		EBL	34	43.5	D	54	22.2	C	120	63.1	E
		EBT	19	41.1	D	76	22.1	C	136	47.0	D
		EBR	4	40.5	D	7	20.9	C	14	40.4	D
		WBL	132	53.7	D	70	19.6	B	61	48.4	D
		WBT	132	47.7	D	85	19.0	B	23	43.4	D
		WBR	324	64.4	E	343	47.2	D	407	42.5	D
		NBL	32	9.7	A	5	8.2	A			
		NBT	240	9.2	A	217	8.9	A	569	12.7	B
		NBR	61			60			140		
		SBL	354	5.3	A	301	6.1	A	321	13.3	B
		SBT	602	5.3	A	209	5.0	A	175	4.0	A
		SBR	140			47			20		
99	04/25/12	55th St. & Central Ave.		8.9	A		9.2	A		11.4	B
		EBL	4	36.1	D				3	24.5	C
		EBT	4	36.0	D		20.9	C		24.3	C
		EBR	3			4			4		
		WBL	55	39.5	D	143	24.0	C	265	37.1	D
		WBT	1	35.9	D		21.1	C	1	25.0	C
		WBR	19			42			107		
		NBL	8	4.7	A	7	5.8	A			
		NBT	741	7.4	A	534	7.5	A	486	7.2	A
		NBR	258			138			40		
		SBL	103	8.7	A	40	6.0	A	21	3.7	A
		SBT	514	4.8	A	535	6.1	A	922	5.2	A
		SBR	4			3			3		
100	05/06/14	Tantra Dr. & Table Mesa Dr.		12.7	B		7.5	B		9.7	A
		EBL	2	10.7	B	3	6.1	A	1	7.9	A
		EBT	1276	16.6	B	750	7.8	A	1047	12.8	B
		EBR	41			47			60		
		WBL	53	15.0	B	56	3.1	A	132	10.7	B
		WBT	1114	4.8	A	637	1.9	A	1219	1.7	A
		WBR	2			4			3		
		NBL	60			58			66		
		NBT	1	31.2	C	1	30.7	C		41.1	D
		NBR	129	29.8	C	58	29.3	C	83	39.0	D
		SBL	2	29.0	C	3	29.1	C	4	38.8	D
		SBT		28.9	C	1	28.9	C	1	38.5	D
		SBR	1						1		

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			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
101	04/26/12	Valmont Rd. & Airport Rd.		13.2	B		12.3	B		20.4	C
		EBL	337	21.1	C	252	6.3	A	148	6.3	A
		EBT	551	8.5	A	482	3.6	A	658	6.0	A
		EBR	6			20			8		
		WBL	1	4.9	A	11	5.1	A	3	5.0	A
		WBT	505	7.2	A	417	6.6	A	606	8.1	A
		WBR	155	5.2	A	69	4.6	A	49	4.7	A
		NBL	1	35.2	D	8	39.7	D	5	41.1	D
		NBT	1	35.2	D		35.1	D	1	39.4	D
		NBR	3			5			9		
		SBL	45	35.4	D	48	35.5	D	145	56.4	E
		SBT		35.7	D	2	36.8	D	1	49.1	D
		SBR	128			240			362		
102	07/09/14	47th St. & Valmont Rd.		14.9	B		12.3	B		19.0	B
		EBL	125	2.6	A	141	3.0	A	199	27.6	C
		EBT	663	2.0	A	632	1.5	A	652	4.0	A
		EBR	150			94			42		
		WBL	17	11.7	B	20	11.0	B	18	11.5	B
		WBT	541	15.2	B	564	13.6	B	710	16.6	B
		WBR	102			100			158		
		NBL	44	35.1	D	69	36.6	D	81	48.0	D
		NBT	29	33.7	C	34	33.9	C	54	40.1	D
		NBR	22			43			34		
		SBL	156	44.8	D	57	34.5	C	96	42.9	D
		SBT	43	35.9	D	21	34.2	C	17	39.4	D
		SBR	102			125			159		
103	07/10/13	Foothills Pkwy & Valmont Rd.		49.3	D		42.9	D		62.5	E
		EBL	74	72.2	E	128	75.6	E	250	95.2	F
		EBT	367	19.9	B	487	31.0	C	589	47.8	D
		EBR	239	6.8	A	290	28.6	C	438	96.2	F
		WBL	161	66.3	E	189	62.9	E	246	97.6	F
		WBT	444	24.0	C	570	35.9	D	564	87.5	F
		WBR	64			62			188		
		NBL	351	129.7	F	368	78.5	E	469	128.6	F
		NBT	882	32.5	C	825	39.2	D	1328	28.7	C
		NBR	296	48.5	D	237	85.3	F	314	33.8	C
		SBL	230	41.8	D	147	39.5	D	159	55.3	E
		SBT	1455	64.0	E	1027	30.7	C	1261	45.6	D
		SBR	179	18.7	B	127	20.0	B	148	22.3	C
104	07/10/14	55th St. & Pearl Pkwy		24.9	C		22.8	C		41.0	D
		EBL	30	27.8	C	46	14.1	B	58	18.0	B
		EBT	104	32.3	C	154	17.8	B	481	25.9	C
		EBR	91	31.4	C	158	17.9	B	137	22.6	C
		WBL	529	21.1	C	135	13.2	B	173	18.9	B
		WBT	410	26.0	C	196	16.8	B	192	22.9	C
		WBR	405	24.8	C	174	16.6	B	164	22.4	C
		NBL	98	49.6	D	151	37.9	D	135	41.9	D
		NBT	242	12.5	B	298	23.2	C	366	40.5	D
		NBR	79	17.6	B	148	16.2	B	509	58.8	E
		SBL	121	39.2	D	182	37.2	D	500	78.6	E
		SBT	346	23.2	C	286	30.5	C	323	27.8	C
		SBR	45	16.9	B	35	21.3	C	78	20.1	C
105	05/01/12	13th St. & Pine St.		18.2	B		11.4	B		35.6	D
		EBL	25			9			17		
		EBT	222	8.4	A	176	5.4	A	233	6.2	A
		EBR	18			29			45		
		WBL	13			15			18		
		WBT	139	6.3	A	139	4.2	A	204	5.8	A
		WBR	61			29			63		
		NBL	6			6			4		
		NBT	80	26.1	C	49	16.1	B	132	34.8	C
		NBR	23			49			73		
		SBL	60			46			78		
		SBT	90	38.4	D	34	29.2	C	29	153.4	F
		SBR	18			23			28		

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
111	06/20/13	55th St. & Flatiron Pkwy		5.6	A		10.7	A		16.8	B
		EBL	1	37.4	D	8	22.5	C	41	26.8	C
		EBT		37.3	D	4	22.5	C	1	25.6	C
		EBR	3			19			9		
		WBL	33	39.5	D	127	26.5	C	244	50.3	D
		WBT	2	37.4	D	3	22.3	C			
		WBR	53	37.5	D	114	22.8	C	302	33.5	C
		NBL	30	4.4	A	25	9.5	A	4	5.0	A
		NBT	448	4.6	A	459	10.4	B	650	6.7	A
		NBR	198			89			20		
		SBL	332	5.3	A	147	3.4	A	63	3.4	A
		SBT	659	0.6	A	398	2.8	A	535	3.2	A
		SBR	36			18			4		
112	05/08/14	Lehigh St. & Heidelberg Dr.		2.7	A		2.9	A		2.4	A
		EBL									
		EBT									
		EBR									
		WBL	7	16.0	B	3	16.6	B	6	16.6	B
		WBT									
		WBR	12			9			5		
		NBL									
		NBT	191	1.8	A	97	1.5	A	98	1.6	A
		NBR	18			4			7		
		SBL	30	1.6	A	10	1.4	A	12	1.4	A
		SBT	125	1.6	A	74	1.4	A	138	1.6	A
		SBR									
113	05/13/14	Gilpin Dr. & Aurora Ave.		6.5	A		8.7	A		8.0	A
		EBL									
		EBT	109	6.5	A	38	9.4	A	69	8.2	A
		EBR	24			10			12		
		WBL	4			2			1		
		WBT	122	6.7	A	34	9.4	A	63	8.2	A
		WBR									
		NBL	32	5.7	A	8	3.6	A	8	4.1	A
		NBT									
		NBR	5			1					
		SBL									
		SBT									
		SBR									
114	05/13/14	Eisenhower Dr. & Harrison Ave.		2.8	A		4.2	A		3.0	A
		EBL	11	16.1	B	5	15.5	B		15.9	B
		EBT									
		EBR	8			9			17		
		WBL									
		WBT									
		WBR									
		NBL	12			9			9		
		NBT	132	1.8	A	46	1.6	A	69	1.5	A
		NBR									
		SBL									
		SBT	115	1.6	A	48	1.6	A	96	1.5	A
		SBR	6			6			6		
115	07/22/14	Broadway & Violet Ave.		9.0	A		7.9	A		11.3	B
		EBL	9	32.1	C	19	27.6	C	13	33.0	C
		EBT	37	32.9	C	20	27.7	C	28	33.5	C
		EBR	16			15			11		
		WBL	72	34.5	C	41	28.3	C	62	34.4	C
		WBT	21	32.8	C	13	27.6	C	19	33.3	C
		WBR	49			63			76		
		NBL	9	1.0	A	26	1.3	A	22	1.7	A
		NBT	336	2.5	A	441	1.9	A	770	8.8	A
		NBR	42			41			45		
		SBL	43	2.7	A	61	3.8	A	58	6.0	A
		SBT	686	4.5	A	437	4.8	A	491	5.5	A
		SBR	13			20			13		

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
116	05/15/14	19th St. & Floral Dr.		5.9	A		2.8	A		2.8	A
		EBL									
		EBT									
		EBR									
		WBL	38	13.3	B	7	16.1	B	15	16.0	B
		WBT									
		WBR	49			11			14		
		NBL									
		NBT	154	3.3	A	139	1.6	A	250	1.8	A
		NBR	35			14			8		
		SBL	66			5			4		
		SBT	334	5.0	A	147	1.6	A	191	1.8	A
		SBR									
117	07/24/12	28th St. & Jay Rd.		16.7	B		14.3	B		52.7	D
		EBL	11			30			34		
		EBT	54	34.3	C	31	34.2	C	60	39.8	D
		EBR	46	32.3	C	23	32.3	C	33	34.8	C
		WBL	79			70			88		
		WBT	48	37.2	D	43	36.8	D	74	49.4	D
		WBR	274	33.6	C	270	33.9	C	411	56.4	E
		NBL	23	5.2	A	24	2.9	A	34	9.3	A
		NBT	307	5.6	A	604	4.3	A	892	37.3	D
		NBR	51	4.1	A	85	4.0	A	79	12.3	B
		SBL	377	13.5	B	218	15.5	B	281	194.5	F
		SBT	746	12.5	B	528	9.0	A	656	10.9	B
		SBR	14	5.1	A	9	5.0	A	16	5.8	A
118	08/02/12	28th St. & Winding Tr./Palo Pkwy		12.6	B		9.7	B		16.0	B
		EBL	9	28.4	C	7	32.8	C	6	34.2	C
		EBT	6	28.4	C	1	32.6	C	1	33.8	C
		EBR	55	28.5	C	46	32.8	C	42	34.0	C
		WBL	110	31.5	C	88	35.3	D	82	36.7	D
		WBT	4	28.3	C	1	32.6	C	5	34.0	C
		WBR	18	28.3	C	20	32.7	C	14	33.9	C
		NBL	26	5.4	A	35	2.7	A	62	3.4	A
		NBT	408	4.9	A	676	6.4	A	938	16.7	B
		NBR	51	0.3	A	103	0.4	A	129	0.3	A
		SBL	15	3.9	A	12	3.1	A	13	9.1	A
		SBT	889	12.9	B	710	8.0	A	751	14.8	B
		SBR	6	1.1	A	10	1.9	A	12	3.4	A
119	06/27/13	Conestoga St. & Arapahoe Rd.		7.9	A		10.7	A		8.6	A
		EBL	89	32.1	C	116	23.0	C	42	3.0	A
		EBT	621	3.0	A	1004	1.9	A	1319	2.3	A
		EBR	31			128			74		
		WBL	68	5.4	A	126	34.5	C	89	41.3	D
		WBT	1198	5.5	A	1033	8.5	A	888	7.1	A
		WBR	66			49			12		
		NBL	31			94			45		
		NBT	7	25.2	C	25	27.5	C		30.7	C
		NBR	39	24.3	C	159	26.0	C	88	30.7	C
		SBL	15			33			62		
		SBT	7	24.6	C	43	25.7	C	14	32.1	C
		SBR	48	24.7	C	104	25.2	C	100	30.2	C
120	07/28/11	Broadway & North St.		8.0	A		8.1	A		9.1	A
		EBL	23			49			59		
		EBT	42	30.7	C	26	25.6	C	35	41.3	D
		EBR	21			42			69		
		WBL	60			64			47		
		WBT	40	34.6	C	38	26.6	C	29	37.6	D
		WBR	24			33			17		
		NBL	85	15.2	B	34	5.1	A	46	4.0	A
		NBT	643	3.1	A	716	4.8	A	1003	4.7	A
		NBR	49			45			24		
		SBL	48	3.6	A	26	4.0	A	30	4.6	A
		SBT	1058	4.5	A	813	5.3	A	961	3.6	A
		SBR	70			45			43		

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ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
121	06/25/13	28th St. & Kalmia Ave.		11.6	B		11.7	B		12.1	B
		EBL	11	27.4	C	18	27.7	C	31	33.6	C
		EBT	5	28.9	C	9	27.7	C	11	33.2	C
		EBR	122			55			57		
		WBL	110	32.7	C	152	32.5	C	107	36.5	D
		WBT	6	27.3	C	4	27.4	C	2	32.8	C
		WBR	6			19			20		
		NBL	38	8.9	A	52	8.3	A	94	12.2	B
		NBT	500	6.2	A	763	9.1	A	1279	11.7	B
		NBR	43	1.9	A	61	10.0	B	124	14.7	B
		SBL	6	7.5	A	6	5.7	A	9	4.7	A
		SBT	1155	9.4	A	789	7.1	A	858	5.4	A
		SBR	18			11			15		
122	06/25/09	Foothills W. Ramp & Pearl Pkwy		8.3	A		13.3	A		13.3	B
		EBL	11	27.4	C	18	27.7	C	31	33.6	C
		EBT	5	28.9	C	9	27.7	C	11	33.2	C
		EBR	122			55			57		
		WBL	110	32.7	C	152	32.5	C	107	36.5	D
		WBT	6	27.3	C	4	27.4	C	2	32.8	C
		WBR	6			19			20		
		NBL	38	8.9	A	52	8.3	A	94	12.2	B
		NBT	500	6.2	A	763	9.1	A	1279	11.7	B
		NBR	43	1.9	A	61	10.0	B	124	14.7	B
		SBL	6	7.5	A	6	5.7	A	9	4.7	A
		SBT	1155	9.4	A	789	7.1	A	858	5.4	A
		SBR	18			11			15		
123	07/23/14	Broadway & Quince Ave.		7.7	A		7.8	A		17.8	B
		EBL	4	31.1	C	3	26.3	C	6	31.1	C
		EBT	3	31.2	C	2	26.2	C	5	30.7	C
		EBR	23			17			8		
		WBL	51	33.3	C	76	28.5	C	69	32.9	C
		WBT	1	31.1	C	4	26.6	C	6	31.4	C
		WBR	35			69			98		
		NBL	11	1.8	A	14	1.6	A	23	7.7	A
		NBT	358	3.5	A	479	4.5	A	805	19.3	B
		NBR	31			36			34		
		SBL	70	2.5	A	63	2.9	A	70	11.6	B
		SBT	730	5.7	A	489	4.1	A	510	9.2	A
		SBR	5			5			6		
124	04/19/12	49th St. & Pearl Pkwy		7.1	A		11.6	A		15.3	B
		EBL	69	3.5	A	84	5.3	A	49	5.2	A
		EBT	306	3.7	A	471	5.7	A	609	7.5	A
		EBR	142	1.8	A	83	5.1	A	16	4.0	A
		WBL	120	6.0	A	34	5.6	A	4	6.6	A
		WBT	667	6.4	A	492	6.0	A	482	8.1	A
		WBR	45			36			19		
		NBL	12	33.1	C	78	37.0	D	101	42.6	D
		NBT				6	32.8	C	2	33.1	C
		NBR	6	32.7	C	33	32.9	C	125	34.4	C
		SBL	12	33.2	C	29	33.7	C	59	36.6	D
		SBT	3	33.2	C	2	33.6	C		34.0	C
		SBR	50			129			89		
125	05/22/12	63rd St. & Spine Rd.		11.5	B		11.5	B		11.5	B
		EBL	22	14.6	B	29	20.1	C	74	15.7	B
		EBT	35	14.6	B	57	20.2	C	94	15.7	B
		EBR	5			22			60		
		WBL	258	27.4	C	194	25.1	C	172	18.5	B
		WBT	75	15.5	B	56	20.4	C	33	15.1	B
		WBR	86			64			93		
		NBL	47	8.1	A	15	5.4	A	5	6.1	A
		NBT	200	7.0	A	198	6.1	A	582	8.8	A
		NBR	153			185			281		
		SBL	114	7.5	A	55	4.8	A	57	13.2	B
		SBT	566	6.9	A	194	4.0	A	196	7.9	A
		SBR	56			22			11		

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			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
126	07/12/12	Spine Rd. & Lookout Rd.		9.6	A		10.7	A		13.5	B
		EBL	45	8.4	A	17	4.6	A	20	6.8	A
		EBT	161	7.8	A	215	5.5	A	507	11.4	B
		EBR	87	9.7	A	169	3.1	A	128	12.3	B
		WBL	258	8.1	A	101	5.5	A	81	10.2	B
		WBT	496	9.3	A	245	5.8	A	216	8.9	A
		WBR	44			20			3		
		NBL	68	14.8	B	150	22.7	C	140	15.9	B
		NBT	7	14.2	B	25	20.4	C	8	17.2	B
		NBR	47			135			366		
		SBL	11	14.2	B	22	20.0	C	60	22.7	C
		SBT	4	14.0	B	21	19.7	B	21	14.5	B
		SBR	11			23			52		
127	05/10/12	Lookout Rd. & 71st St.		15.1	B		10.1	B		13.3	B
		EBL	59	15.7	B	167	5.7	A	331	14.6	B
		EBT	222	6.8	A	311	4.9	A	751	12.4	B
		EBR									
		WBL									
		WBT	712	16.2	B	248	5.4	A	262	7.1	A
		WBR	106			42			52		
		NBL									
		NBT									
		NBR									
		SBL	37	18.6	B	39	23.6	C	120	21.1	C
		SBT									
		SBR	252			155			160		
128	10/16/14	19th St. & Arapahoe Rd.		8.3	A		5.7	A		7.6	A
		EBL	1	1.7	A	3	1.2	A	6	2.5	A
		EBT	423	4.1	A	557	5.0	A	746	6.0	A
		EBR	3			7			3		
		WBL	31	3.9	A	22	1.6	A	21	3.1	A
		WBT	517	6.3	A	573	2.8	A	636	5.3	A
		WBR	5			19			13		
		NBL	6			3			5		
		NBT		31.7	C	3	34.2	C		36.4	D
		NBR	60	31.7	C	33	33.8	C	58	36.4	D
		SBL	12			10			12		
		SBT	1	31.8	C	2	34.2	C		36.4	D
		SBR	3			5			2		
129	06/19/13	Broadway & Lee Hill Dr.		15.0	B		11.7	B		14.6	B
		EBL	7			22			17		
		EBT	202	31.5	C	119	24.7	C	99	38.8	D
		EBR	177	27.5	C	121	22.8	C	129	33.5	C
		WBL	40	28.6	C	27	23.3	C	30	34.2	C
		WBT	70	28.2	C	101	24.2	C	182	43.1	D
		WBR	9			14			26		
		NBL	97	5.2	A	145	4.3	A	213	2.8	A
		NBT	190	2.7	A	251	4.1	A	549	2.8	A
		NBR	32			47			49		
		SBL	41	5.0	A	21	5.3	A	68	5.0	A
		SBT	495	8.4	A	212	6.2	A	244	5.0	A
		SBR	16			16			26		
130	10/23/13	28th St. & Glenwood Dr.		6.5	A		9.3	A		8.2	A
		EBL	33	32.2	C	52	33.1	C	82	41.7	D
		EBT	29	32.3	C	42	32.6	C	48	39.2	D
		EBR	63			73			76		
		WBL	23	28.6	C	42	34.8	C	30	39.1	D
		WBT	33	27.2	C	51	34.4	C	78	41.6	D
		WBR	32			45			46		
		NBL	41	10.8	B	66	7.0	A	77	3.5	A
		NBT	770	6.0	A	1115	9.2	A	1397	3.5	A
		NBR	21			65			50		
		SBL	53	1.8	A	49	3.9	A	34	2.8	A
		SBT	1237	1.9	A	941	1.2	A	985	1.4	A
		SBR	22			26			31		

Attachment A: Draft 2015 Signalized Intersection Level of Service Report

ID#	Count Date	Intersection & Movements	AM			Noon			PM		
			Volume	Delay (s)	LOS	Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
136	10/23/14	63rd Street & Arapahoe Rd.		12.1	B		17.8	B		61.3	E
		EBL	62	4.4	A	95	12.3	B	78	6.9	A
		EBT	418	5.1	A	702	19.8	B	1332	91.1	F
		EBR	32	2.3	A	22	20.8	C	33	7.1	A
		WBL				4	9.5	A	4	12.4	B
		WBT	1310	13.0	B	668	11.2	B	536	10.1	B
		WBR	22			30			17		
		NBL	21	40.9	D	10	32.6	C	19	39.0	D
		NBT		39.9	D	3	32.3	C		37.7	D
		NBR	2			6			7		
		SBL	12	40.8	D	28	33.7	C	50	43.7	D
		SBT		40.2	D		33.3	C		38.4	D
		SBR	34			112			79		
137	10/28/14	66th St & Arapahoe Rd.		40.2	D		13.2	D		78.3	E
		EBL	1	11.4	B	1	11.4	B	3	8.4	A
		EBT	357	11.5	B	640	14.5	B	1375	113.6	F
		EBR	58	10.8	B	44	16.5	B	13	19.6	B
		WBL	67	5.6	A	31	7.4	A	10	32.9	C
		WBT	1281	54.5	D	587	7.8	A	557	7.3	A
		WBR	2								
		NBL	43	38.9	D	55	38.7	D	40	44.6	D
		NBT		36.0	D		36.0	D		41.9	D
		NBR	16			19			29		
		SBL	1								
		SBT		36.0	D						
		SBR									
138	07/29/14	Broadway & US 36		12.7	B		14.2	B		28.5	C
		EBL									
		EBT	387	10.7	B	227	14.2	B	255	40.4	D
		EBR	398	12.6	B	189	14.4	B	165	37.8	D
		WBL	53	5.4	A	68	8.2	A	97	34.3	C
		WBT	181	5.3	A	271	8.4	A	468	34.4	C
		WBR									
		NBL									
		NBT									
		NBR									
		SBL	165	27.0	C	187	21.0	C	497	15.5	B
		SBT									
		SBR	58	10.0	B	62	15.7	B	52	12.4	B

City of Boulder

DRIVE TIME 2014

DRAFT

Arapahoe Avenue • Valmont Road • Broadway



Prepared by:
Fox Tuttle Hernandez Transportation Group, LLC
and
Short Elliott Hendrickson, Inc.

April 2014

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APPENDIX

Appendix I: Drive Time Comparison for All East-West Years

Appendix II: Drive Time 2014

1.0 Background

A drive time study measuring the time it takes to get across the City of Boulder during peak traffic hours (7:30am, 12:00pm, and 5:00 pm) has been performed each year since 1986. The purpose of these annual studies is to determine how congestion on the major arteries in Boulder is changing over time.

Historically, in even-numbered years, the north/south routes (Broadway, 28th Street, and recently Foothills Parkway) have been studied and in odd-numbered years, the east/west routes (Arapahoe Avenue, Valmont Road, and Pearl Street) have been studied (see **Methodology** section for exact routes). This report focuses on the results from 2014 for the following studied routes:

1. Arapahoe Avenue (east/west)
2. Valmont Road (east/west)
3. Broadway (north/south)

This year Pearl Street was under construction and the data would not be accurately representative if collected. Therefore, Pearl Street was replaced by Broadway. **Appendix I** contains comparison summaries of drive time information by street and direction for all years. **Appendix II** contains the results in detail for data collected in 2014. Refer to older reports for detailed results of past study years.

The frequency of travel time and delay studies in the City has been reduced in the past few years due to budgetary constraints. Thus, the previous east-west travel time evaluations were performed in 2010 and the north-south in 2012. Prior to 2004, these studies were performed by staff of the City of Boulder Audit and Evaluation Division. Since 2004, data has been collected by a consultant team consisting of Fox Tuttle Hernandez Transportation Group, LLC and Short Elliott Hendrickson, Inc.

In 2004, a significant change in study methodology was made: travel time runs were aborted any time there were conditions along the corridor that were considered atypical. This may have been due to construction, lane closures, traffic accidents, or severe weather. Since these runs, which are typically much longer and experience greater delays, were removed from the data set, the average trip times after 2004 are generally shorter than previous years and direct comparisons between new data and previous study years may not be relevant. This change was made to provide a more direct evaluation of the performance of the corridor signal system by only collecting data in typical conditions.

Note: Prior to 2004, the travel time and delay study areas on Broadway and Arapahoe Avenue were shorter than today's corridor. Broadway used to terminate at Violet Avenue on the north

end and has been extended to Lee Hill Road. Arapahoe Avenue used to terminate at 55th Street on the east end and has been extended to 65th Street. This year Arapahoe Avenue was extended even further east to 75th Street, which is included in the results of the full corridor. Throughout this report, where comparisons are made to pre-2004 data in this report, only the original study area segments were included in the calculations to provide a consistent basis for comparison. When tables are not comparing historical data, the results from the full corridor is reported.

2.0 Comparison of Drive Time by Street

The average trip times and average time spent stopped (or “stopped time”) on Arapahoe Avenue, Valmont Road, and Broadway from 1986/87 to 2014 are displayed in **Figure 1**. In Summary:

- **Arapahoe Avenue:** The total travel times remained fairly constant between 1987 and 1999 and then experienced a dramatic spike in travel time in 2001. After a slight decrease in travel time in 2003, travel times on Arapahoe Avenue dropped significantly in 2005. This decrease may be partially attributable to the change in data collection methods discussed in previously in this report. Since 2005, travel times and stopped times have remained consistent.

The 2001 report did not provide potential reasoning for the spike that occurred in that year along Arapahoe Avenue, though the Broadway construction project may have contributed to these results. The Broadway project heavily affected the Arapahoe Avenue / Broadway intersection and would have been expected to result in increased delays there. The Broadway project did not extend to the Valmont Road corridor. Considering that the Valmont Road corridor did not experience the same increases as the Arapahoe Avenue corridor did in 2001, the theory that the Broadway project contributed to the increased travel times on Arapahoe Avenue is plausible.

- **Valmont Road:** The total trip times have remained relatively constant, with the 2014 mean total trip time within seven seconds of the 1987 value. Stopped times have also remained relatively constant from 1987 to 2014 along Valmont Road with 2014 matching the stopped time from 1987.
- **Broadway:** The average trip times and stopped time on Broadway have increased steadily between 1986 and 1998, with a sharp increase between 1998 and 2000. After 2000, total trip times decreased steadily to a 12-year low-point in 2004. Recent data shows similar rates of increase in travel and stop times as pre-1998 data. There were no significant changes to travel or stopped times in 2014. The most recent travel time results are nearly identical to those reported in 2012.

As discussed in previous reports, the Skunk Creek underpass project on Broadway may have contributed to the spike in 2000. The dip in 2004 was most likely due to a change in the study methodology which excluded travel time runs during atypical conditions (construction, lane closures, traffic accidents, severe weather). The reduction in travel times in 2004 may also have been partially attributable to corridor signal timing and roadway improvements, completion of the Broadway reconstruction project between University Avenue & Pine Street (both from decreases in construction-related delays and some diversion of traffic to other parallel corridors), and overall decrease in traffic volumes on this corridor compared to previous years.

Figure 1. Comparison of Total Trip Time and Time Stopped (1986/87 to 2014)

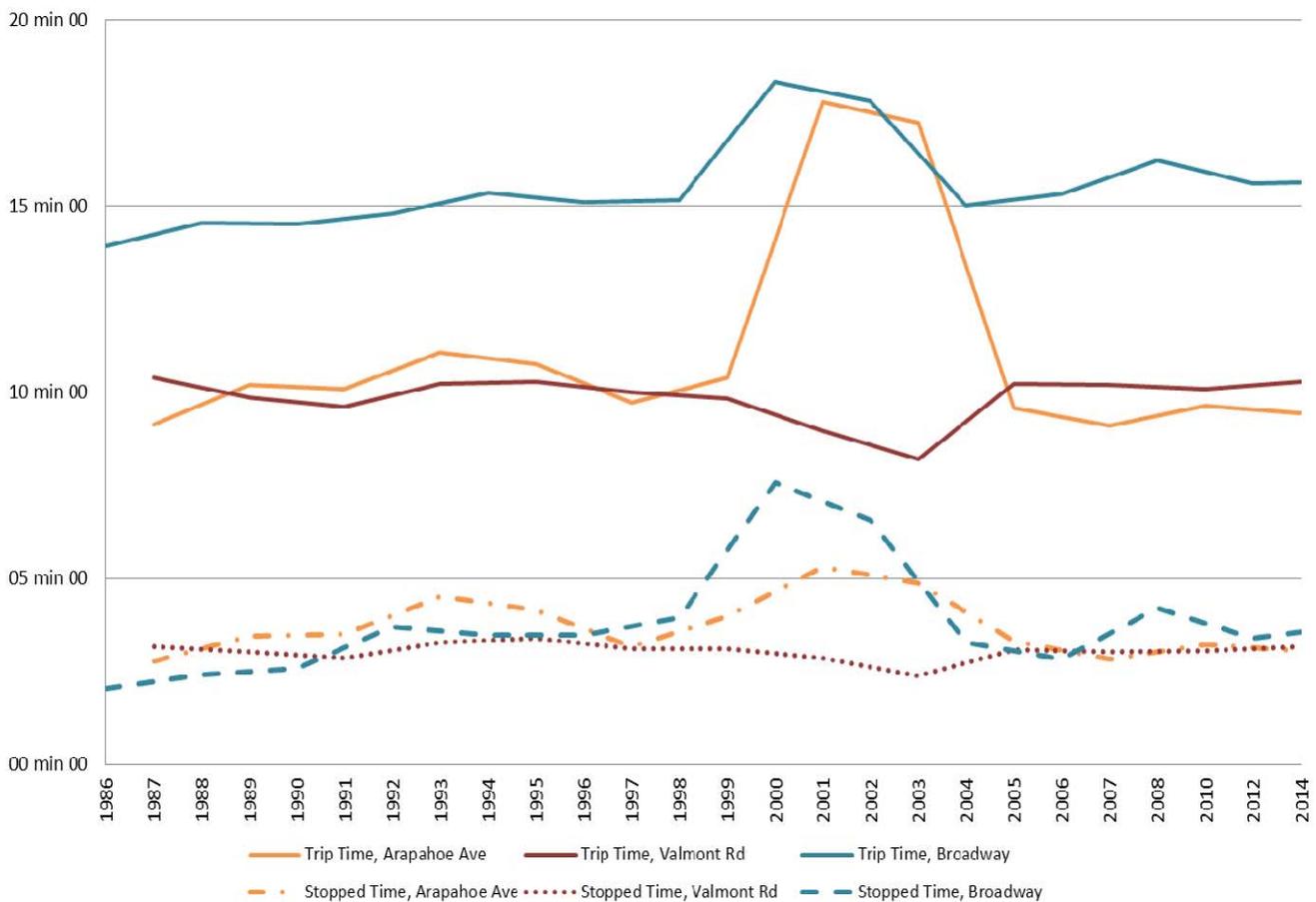


Table 1 (next page) shows the mean trip times, mean time spent stopped, and the mean percent of time spent stopped by year. Differences between each study year and the first year the corridor was studied (1987 for Arapahoe Avenue and Valmont Road, 1986 for Broadway) are presented as well.

Table 1. Comparison of Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped for Arapahoe Avenue, Valmont Road, and Broadway

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from First Year of Data	Time Stopped	Difference from First Year of Data	Percent of Time Stopped	Difference from First Year of Data
Arapahoe Avenue	1987	09 min 07 sec	n/a	02 min 46 sec	n/a	30%	n/a
	1989	10 min 11 sec	+ 01 min 04 sec	03 min 27 sec	+ 00 min 41 sec	33%	+ 3%
	1991	10 min 04 sec	+ 00 min 57 sec	03 min 30 sec	+ 00 min 44 sec	34%	+ 4%
	1993	11 min 03 sec	+ 01 min 56 sec	04 min 31 sec	+ 01 min 45 sec	38%	+ 8%
	1995	10 min 45 sec	+ 01 min 38 sec	04 min 08 sec	+ 01 min 22 sec	37%	+ 7%
	1997	09 min 43 sec	+ 00 min 36 sec	03 min 10 sec	+ 00 min 24 sec	33%	+ 3%
	1999	10 min 23 sec	+ 01 min 16 sec	03 min 59 sec	+ 01 min 13 sec	36%	+ 6%
	2001	17 min 47 sec	+ 08 min 40 sec	05 min 18 sec	+ 02 min 32 sec	30%	- no change
	2003	17 min 14 sec	+ 08 min 07 sec	04 min 53 sec	+ 02 min 07 sec	29%	- 1%
	2005	09 min 35 sec	+ 00 min 28 sec	03 min 18 sec	+ 00 min 32 sec	33%	+ 3%
	2007	09 min 06 sec	- 00 min 01 sec	02 min 50 sec	+ 00 min 04 sec	30%	- no change
	2010	09 min 38 sec	+ 00 min 31 sec	03 min 13 sec	+ 00 min 27 sec	32%	+ 2%
2014	09 min 26 sec	+ 00 min 19 sec	03 min 03 sec	+ 00 min 17 sec	31%	+ 1%	
Valmont Road	1987	10 min 23 sec	n/a	03 min 10 sec	n/a	30%	n/a
	1989	09 min 52 sec	- 00 min 31 sec	03 min 02 sec	- 00 min 08 sec	30%	- no change
	1991	09 min 36 sec	- 00 min 47 sec	02 min 52 sec	- 00 min 18 sec	29%	- 1%
	1993	10 min 14 sec	- 00 min 09 sec	03 min 16 sec	+ 00 min 06 sec	31%	+ 1%
	1995	10 min 16 sec	- 00 min 07 sec	03 min 24 sec	+ 00 min 14 sec	32%	+ 2%
	1997	10 min 00 sec	- 00 min 23 sec	03 min 07 sec	- 00 min 03 sec	31%	+ 1%
	1999	09 min 50 sec	- 00 min 33 sec	03 min 07 sec	- 00 min 03 sec	31%	+ 1%
	2001	08 min 57 sec	- 01 min 26 sec	02 min 51 sec	- 00 min 19 sec	31%	+ 1%
	2003	08 min 12 sec	- 02 min 11 sec	02 min 23 sec	- 00 min 47 sec	25%	- 5%
	2005	10 min 13 sec	- 00 min 10 sec	03 min 05 sec	- 00 min 05 sec	29%	- 1%
	2007	10 min 12 sec	- 00 min 11 sec	03 min 02 sec	- 00 min 08 sec	28%	- 2%
	2010	10 min 04 sec	- 00 min 19 sec	03 min 03 sec	- 00 min 07 sec	29%	- 1%
2014	10 min 16 sec	- 00 min 07 sec	03 min 10 sec	- 00 min 00 sec	30%	- no change	
Broadway	1986	13 min 56 sec	n/a	02 min 02 sec	n/a	14%	n/a
	1988	14 min 33 sec	+ 00 min 37 sec	02 min 25 sec	+ 00 min 23 sec	16%	+ 2%
	1990	14 min 30 sec	+ 00 min 34 sec	02 min 35 sec	+ 00 min 33 sec	18%	+ 4%
	1992	14 min 47 sec	+ 00 min 51 sec	03 min 42 sec	+ 01 min 40 sec	24%	+ 10%
	1994	15 min 22 sec	+ 01 min 26 sec	03 min 28 sec	+ 01 min 26 sec	22%	+ 8%
	1996	15 min 06 sec	+ 01 min 10 sec	03 min 29 sec	+ 01 min 27 sec	23%	+ 9%
	1998	15 min 09 sec	+ 01 min 13 sec	03 min 57 sec	+ 01 min 55 sec	26%	+ 12%
	2000	18 min 20 sec	+ 04 min 24 sec	07 min 34 sec	+ 05 min 32 sec	38%	+ 24%
	2002	17 min 49 sec	+ 03 min 53 sec	06 min 33 sec	+ 04 min 31 sec	35%	+ 21%
	2004	15 min 01 sec	+ 01 min 05 sec	03 min 17 sec	+ 01 min 15 sec	21%	+ 7%
	2006	15 min 19 sec	+ 01 min 23 sec	02 min 50 sec	+ 00 min 48 sec	18%	+ 4%
	2008	16 min 14 sec	+ 02 min 18 sec	04 min 12 sec	+ 02 min 10 sec	25%	+ 11%
	2012	15 min 36 sec	+ 01 min 40 sec	03 min 24 sec	+ 01 min 22 sec	21%	+ 7%
2014	15 min 38 sec	+ 01 min 42 sec	03 min 33 sec	+ 01 min 31 sec	22%	+ 8%	

Figures 2 through 4 show the percent change in mean total trip times and stopped times since 1987 for each of the studied corridors. In summary:

- **Arapahoe Avenue:** The mean total trip time in 2014 is 2% less than 2010 and 3% more than 1987. The mean total time stopped decreased by 5% since 2012 and increased by 10% from 1987.
- **Valmont Road:** Both the total trip and stopped times are nearly the same as 1987 with the total trip time increasing by 1% and the stopped time being the exact same. Compared to 2010 the total trip time is roughly 2% more and the stopped time is roughly 4% more.
- **Broadway:** The mean total travel time and stopped time has consistently been greater than the reported results from 1986. Compared to 2012 the travel time is nearly the same with a 0.2% increase; however, the stopped time increased by 4%. The mean total trip time is 12% more than in 1987 and the mean stopped time has increased by 75%.

Figure 2. Arapahoe Avenue: Percent Change in Total Trip Times and Stopped Times from 1987

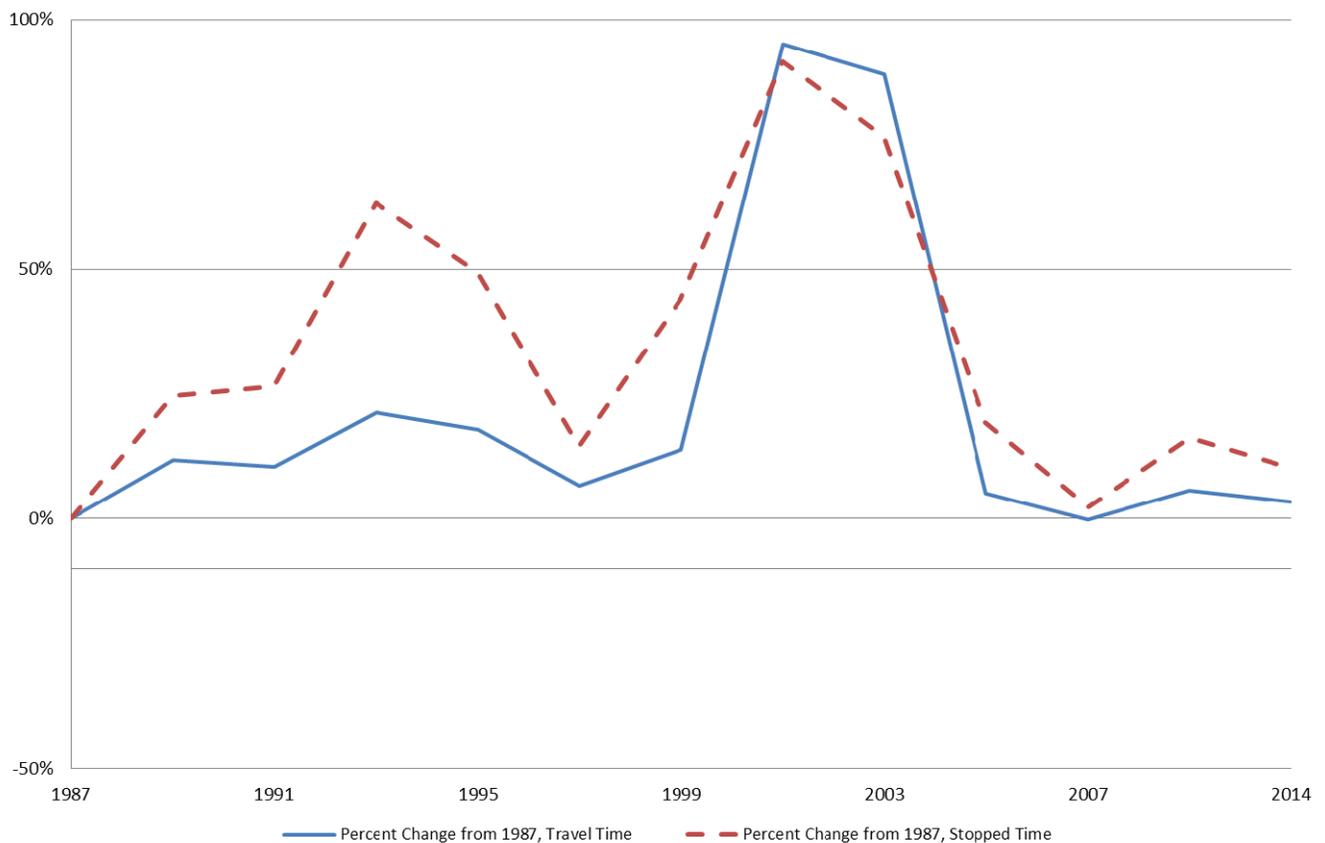


Figure 3. Valmont Road: Percent Change in Total Trip Times and Stopped Times from 1987

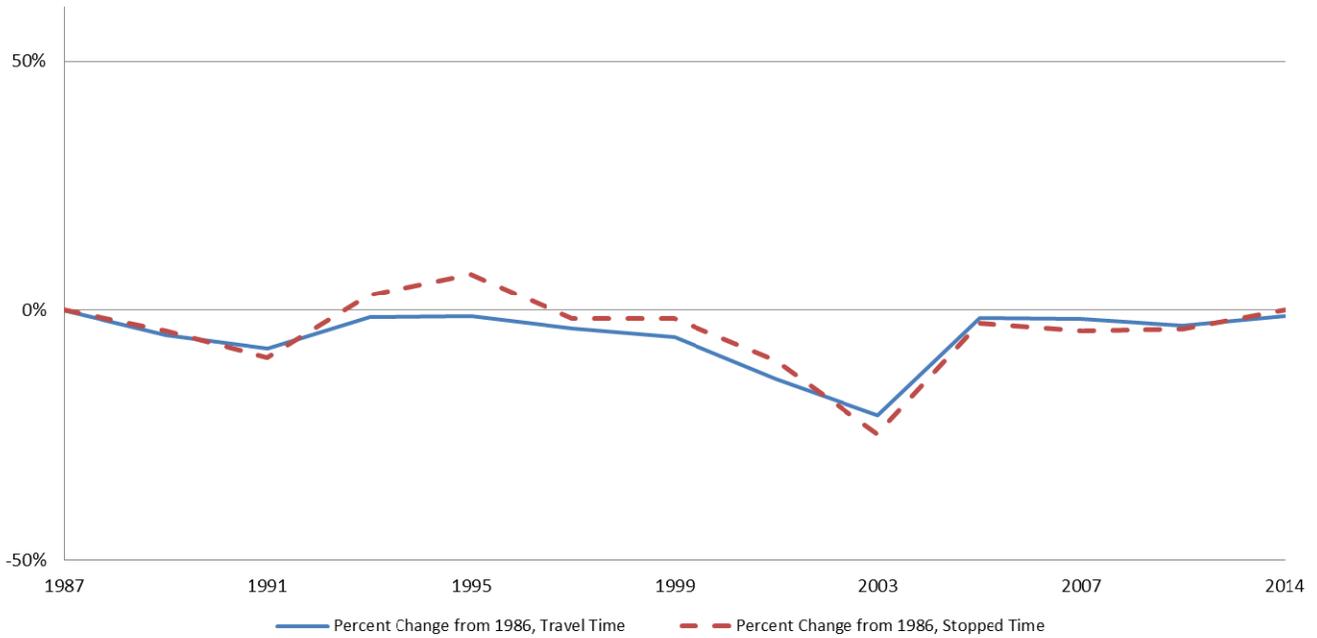
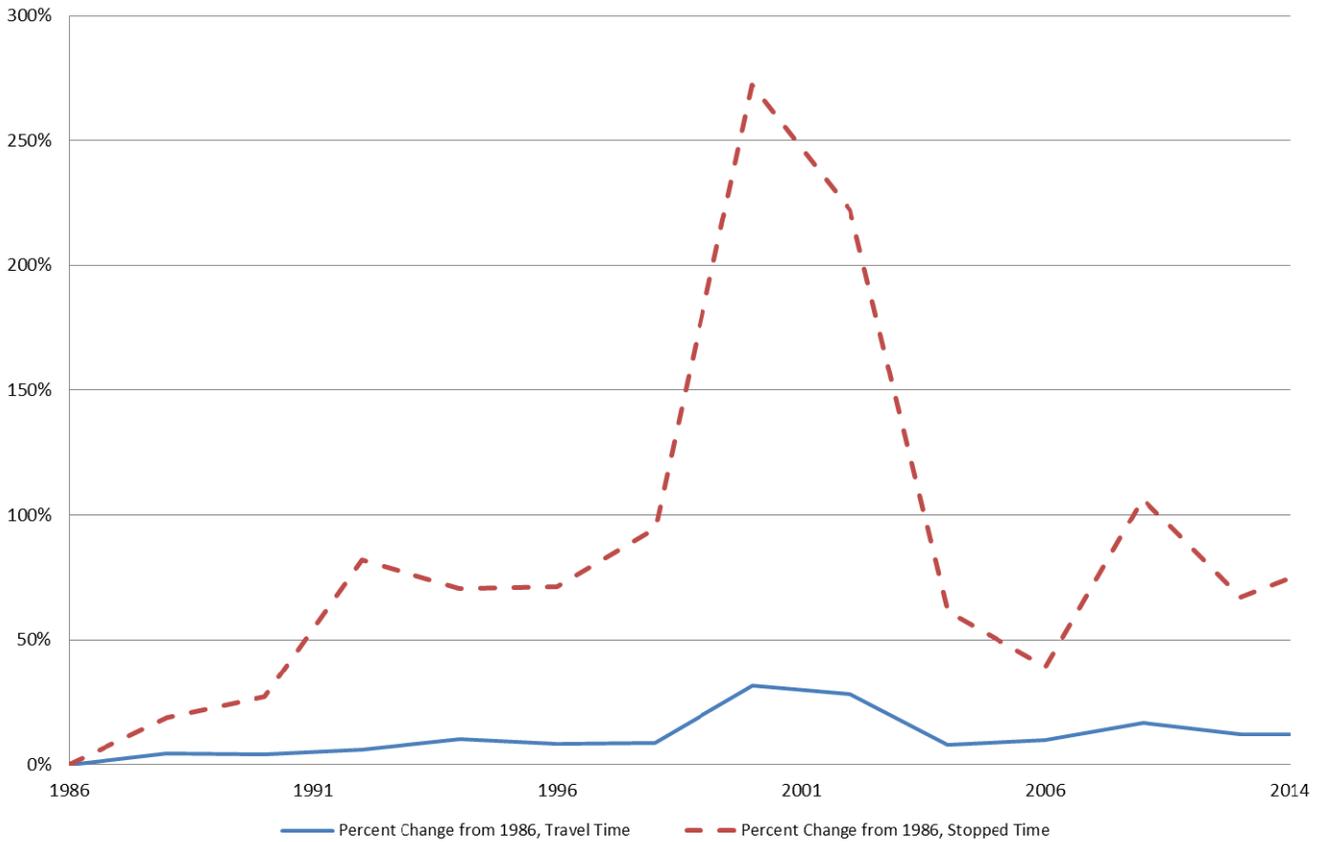


Figure 4. Broadway: Percent Change in Total Trip Times and Stopped Times from 1986



3.0 Comparison of Drive Times by Street and Direction

Mean trip time, time stopped, and percent of time stopped were examined for each street by direction. **Table 2** shows the eastbound and westbound directions on Arapahoe Avenue are fairly balanced year-to-year with respect to total trip and total stopped times. Neither direction has shown to be predominantly faster or slower over the study years. In 2014 the westbound direction became approximately one minute faster than eastbound, which is the largest difference since 1993. **Figures 5 and 6** (on the following page) provide an historic breakdown of mean travel times between nodes to provide some sense of where the changes in travel time have occurred within the corridor over time. *Note: node data is only available for years in which the GPS data collection has been used (2004 to present).*

**Table 2. Comparison of Arapahoe Avenue, East and West
(Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped)**

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from 1987	Time Stopped	Difference from 1987	Percent of Time Stopped	Difference from 1987
Arapahoe Avenue East	1987	09 min 50 sec	n/a	03 min 00 sec	n/a	30%	n/a
	1989	10 min 18 sec	+ 00 min 28 sec	03 min 37 sec	+ 00 min 37 sec	33%	+ 3%
	1991	10 min 05 sec	+ 00 min 15 sec	03 min 35 sec	+ 00 min 35 sec	35%	+ 5%
	1993	10 min 00 sec	+ 00 min 10 sec	03 min 46 sec	+ 00 min 46 sec	38%	+ 8%
	1995	11 min 04 sec	+ 01 min 14 sec	04 min 23 sec	+ 01 min 23 sec	38%	+ 8%
	1997	09 min 49 sec	- 00 min 01 sec	03 min 28 sec	+ 00 min 28 sec	35%	+ 5%
	1999	10 min 30 sec	+ 00 min 40 sec	04 min 07 sec	+ 01 min 07 sec	36%	+ 6%
	2001	17 min 32 sec	+ 07 min 42 sec	05 min 12 sec	+ 02 min 12 sec	29%	- 1%
	2003	16 min 51 sec	+ 07 min 01 sec	04 min 57 sec	+ 01 min 57 sec	29%	- 1%
	2005	09 min 52 sec	+ 00 min 02 sec	03 min 40 sec	+ 00 min 40 sec	35%	+ 5%
	2007	09 min 19 sec	- 00 min 31 sec	03 min 05 sec	+ 00 min 05 sec	32%	+ 2%
	2010	09 min 48 sec	- 00 min 02 sec	03 min 28 sec	+ 00 min 28 sec	33%	+ 3%
2014	09 min 58 sec	+ 00 min 08 sec	03 min 38 sec	+ 00 min 38 sec	34%	+ 4%	
Arapahoe Avenue West	1987	08 min 24 sec	n/a	02 min 34 sec	n/a	30%	n/a
	1989	10 min 04 sec	+ 01 min 40 sec	03 min 18 sec	+ 00 min 44 sec	32%	+ 2%
	1991	10 min 03 sec	+ 01 min 39 sec	03 min 22 sec	+ 00 min 48 sec	32%	+ 2%
	1993	12 min 06 sec	+ 03 min 42 sec	05 min 00 sec	+ 02 min 26 sec	38%	+ 8%
	1995	10 min 26 sec	+ 02 min 02 sec	03 min 45 sec	+ 01 min 11 sec	35%	+ 5%
	1997	09 min 36 sec	+ 01 min 12 sec	02 min 53 sec	+ 00 min 19 sec	30%	0%
	1999	10 min 18 sec	+ 01 min 54 sec	03 min 51 sec	+ 01 min 17 sec	36%	+ 6%
	2001	18 min 01 sec	+ 09 min 37 sec	05 min 25 sec	+ 02 min 51 sec	29%	- 1%
	2003	17 min 37 sec	+ 09 min 13 sec	04 min 48 sec	+ 02 min 14 sec	29%	- 1%
	2005	09 min 15 sec	+ 00 min 51 sec	02 min 53 sec	+ 00 min 19 sec	30%	0%
	2007	08 min 51 sec	+ 00 min 27 sec	02 min 33 sec	- 00 min 01 sec	28%	- 2%
	2010	09 min 28 sec	+ 01 min 04 sec	02 min 59 sec	+ 00 min 25 sec	31%	+ 1%
2014	08 min 55 sec	+ 00 min 31 sec	02 min 30 sec	- 00 min 04 sec	27%	- 3%	

Figure 1. Historic Travel Time from Previous Node (Arapahoe Avenue, Eastbound)
 (2014 data in **Green**, Previous Years in **Grey**)

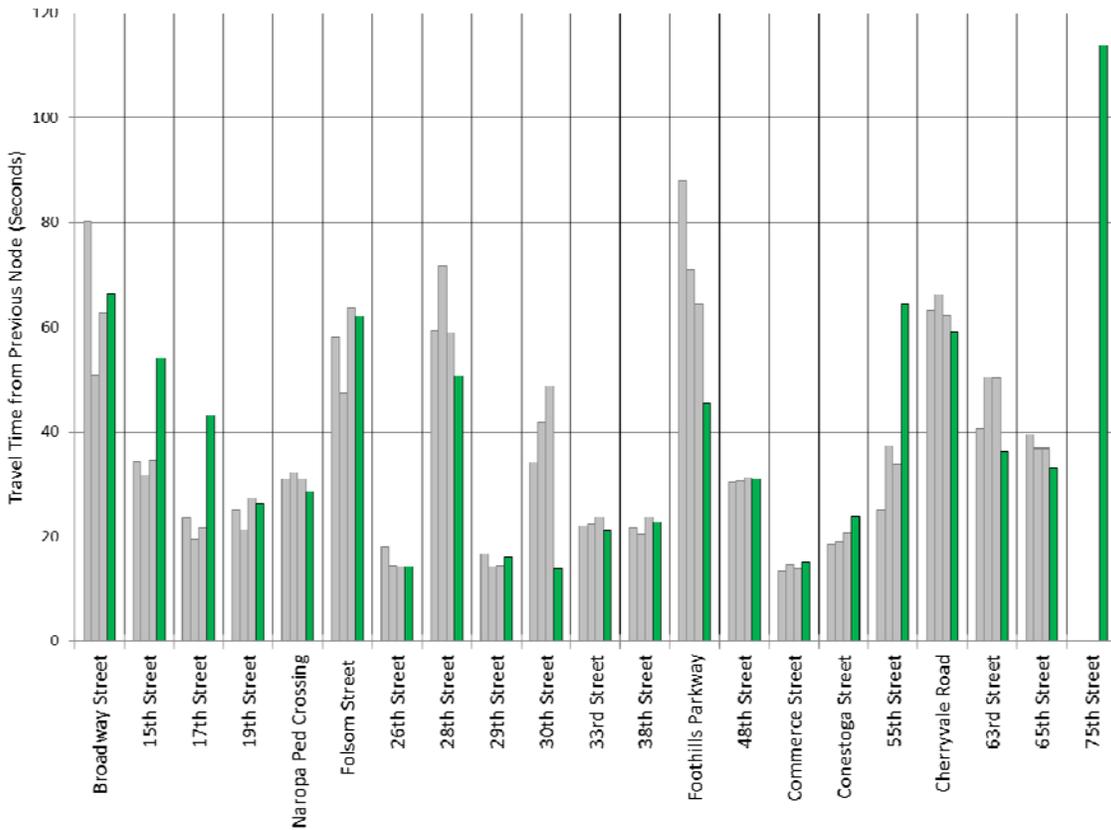
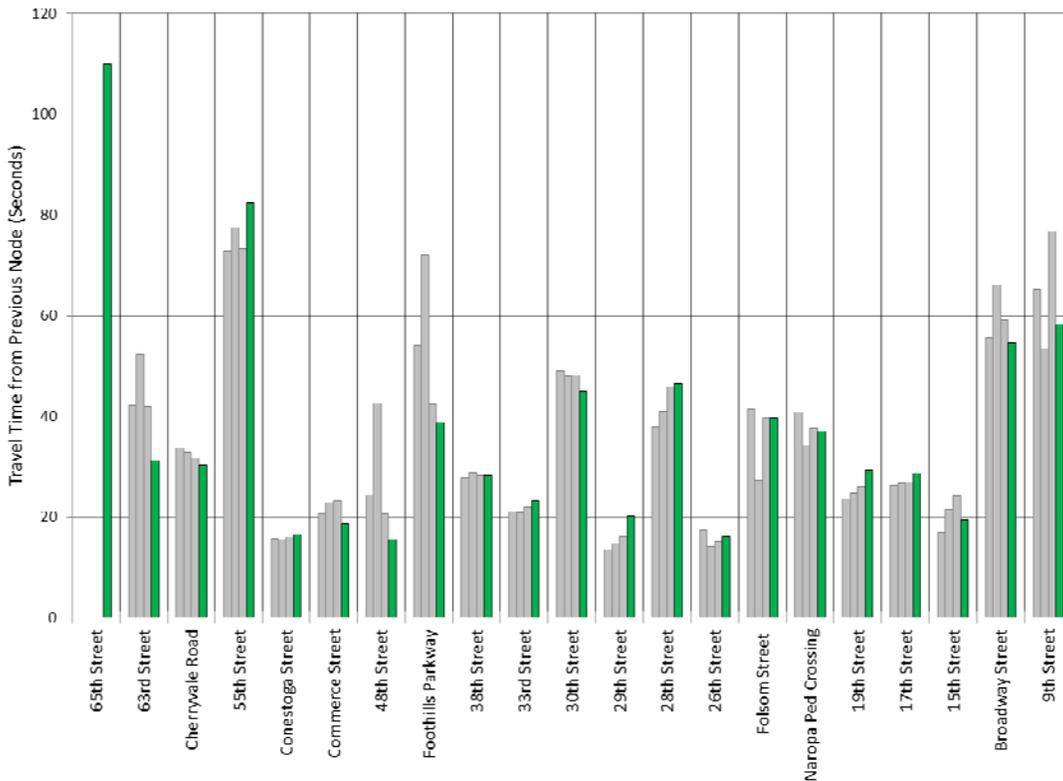


Figure 6. Historic Travel Time from Previous Node (Arapahoe Avenue, Westbound)
 (2014 data in **Green**, Previous Years in **Grey**)



As shown on **Table 3** below, Valmont experienced minimal changes in eastbound and westbound total trip and stopped times between 2005 and 2014. **Figures 7 and 8** (on the following page) provide an historic breakdown of mean travel times between nodes, to provide some sense of where the changes in travel time have occurred within the corridor over time. *Note: node data is only available for years in which the GPS data collection has been used (2004 to present).*

**Table 3. Comparison of Valmont Road, East and West
(Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped)**

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from 1987	Time Stopped	Difference from 1987	Percent of Time Stopped	Difference from 1987
Valmont Road East	1987	10 min 12 sec	n/a	02 min 31 sec	n/a	24%	n/a
	1989	09 min 54 sec	- 00 min 18 sec	02 min 58 sec	+ 00 min 27 sec	30%	+ 6%
	1991	09 min 14 sec	- 00 min 58 sec	02 min 41 sec	+ 00 min 10 sec	29%	+ 5%
	1993	10 min 03 sec	- 00 min 09 sec	03 min 02 sec	+ 00 min 31 sec	31%	+ 7%
	1995	10 min 27 sec	+ 00 min 15 sec	03 min 48 sec	+ 01 min 17 sec	35%	+ 11%
	1997	09 min 48 sec	- 00 min 24 sec	02 min 59 sec	+ 00 min 28 sec	30%	+ 6%
	1999	09 min 34 sec	- 00 min 38 sec	03 min 05 sec	+ 00 min 34 sec	32%	+ 8%
	2001	08 min 55 sec	- 01 min 17 sec	05 min 37 sec	+ 03 min 06 sec	32%	+ 8%
	2003	08 min 12 sec	- 02 min 00 sec	02 min 58 sec	+ 00 min 27 sec	31%	+ 7%
	2005	09 min 48 sec	- 00 min 24 sec	02 min 47 sec	+ 00 min 16 sec	27%	+ 3%
	2007	09 min 57 sec	- 00 min 15 sec	02 min 49 sec	+ 00 min 18 sec	27%	+ 3%
	2010	09 min 47 sec	- 00 min 25 sec	02 min 49 sec	+ 00 min 18 sec	27%	+ 3%
2014	10 min 09 sec	- 00 min 03 sec	03 min 07 sec	+ 00 min 36 sec	30%	+ 6%	
Valmont Road West	1987	10 min 34 sec	n/a	03 min 49 sec	n/a	35%	n/a
	1989	09 min 50 sec	- 00 min 44 sec	03 min 06 sec	- 00 min 43 sec	30%	- 5%
	1991	09 min 57 sec	- 00 min 37 sec	03 min 03 sec	- 00 min 46 sec	30%	- 5%
	1993	10 min 26 sec	- 00 min 08 sec	03 min 30 sec	- 00 min 19 sec	32%	- 3%
	1995	10 min 04 sec	- 00 min 30 sec	02 min 59 sec	- 00 min 50 sec	28%	- 7%
	1997	10 min 11 sec	- 00 min 23 sec	03 min 16 sec	- 00 min 33 sec	31%	- 4%
	1999	10 min 05 sec	- 00 min 29 sec	03 min 08 sec	- 00 min 41 sec	30%	- 5%
	2001	08 min 59 sec	- 01 min 35 sec	02 min 44 sec	- 01 min 05 sec	30%	- 5%
	2003	08 min 02 sec	- 02 min 32 sec	02 min 13 sec	- 01 min 36 sec	28%	- 7%
	2005	10 min 37 sec	+ 00 min 03 sec	03 min 23 sec	- 00 min 26 sec	30%	- 5%
	2007	10 min 28 sec	- 00 min 06 sec	03 min 17 sec	- 00 min 32 sec	30%	- 5%
	2010	10 min 20 sec	- 00 min 14 sec	03 min 16 sec	- 00 min 33 sec	30%	- 5%
2014	10 min 24 sec	- 00 min 10 sec	03 min 13 sec	- 00 min 36 sec	30%	- 5%	

Figure 7. Historic Travel Time from Previous Node (Valmont Road, Eastbound)
 (2014 data in **Green**, Previous Years in **Grey**)

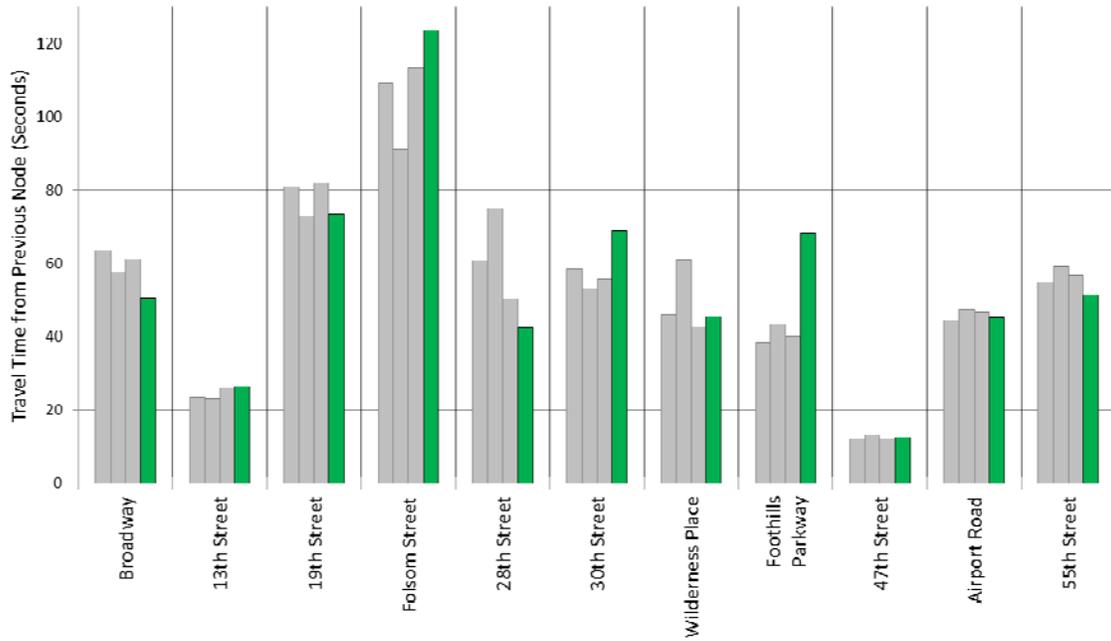
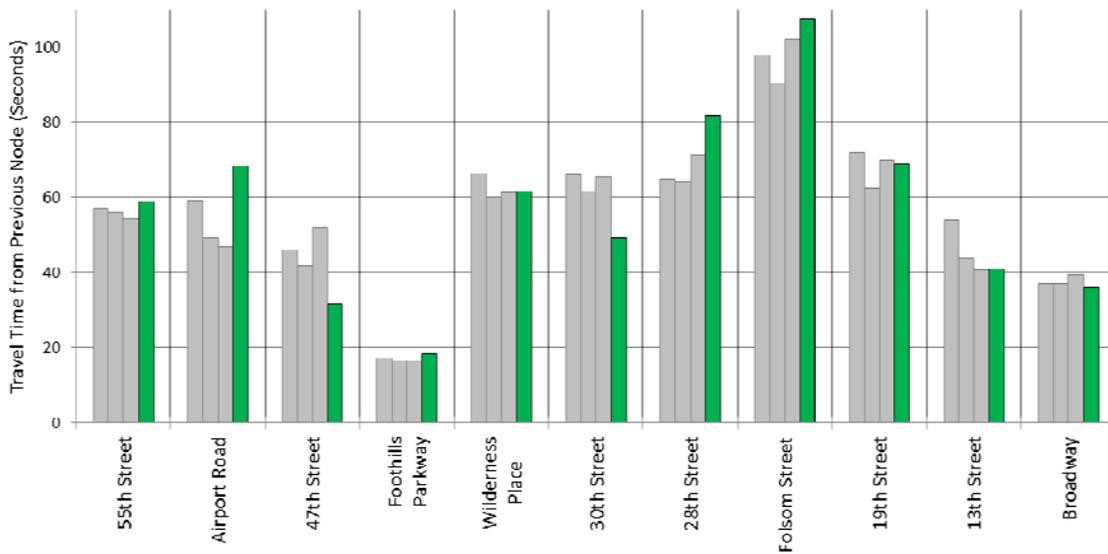


Figure 8. Historic Travel Time from Previous Node (Valmont Road, Westbound)
 (2014 data in **Green**, Previous Years in **Grey**)



The directional data for the Broadway corridor is summarized in **Table 4**. Travel times, stopped times, and percent time stopped were all higher in 2014 than in 1986 for both directions along the Broadway corridor. The northbound direction times are slightly less than in 2012; however, southbound is slightly greater than in 2012. **Figures 9 and 10** provide an historic breakdown of mean travel times between nodes, to provide some sense of where the changes in travel time have occurred within the corridor data years. *Note: node data is only available for years in which the GPS data collection has been used (2004 to present).*

**Table 4. Comparison of Broadway, East and West
(Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped)**

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from 1986	Time Stopped	Difference from 1986	Percent of Time Stopped	Difference from 1986
Broadway North	1986	13 min 43 sec	n/a	01 min 46 sec	n/a	12%	n/a
	1988	15 min 24 sec	+ 01 min 41 sec	02 min 57 sec	+ 01 min 11 sec	18%	+ 6%
	1990	14 min 53 sec	+ 01 min 10 sec	02 min 50 sec	+ 01 min 04 sec	19%	+ 7%
	1992	15 min 20 sec	+ 01 min 37 sec	03 min 51 sec	+ 02 min 05 sec	23%	+ 11%
	1994	15 min 52 sec	+ 02 min 09 sec	03 min 46 sec	+ 02 min 00 sec	23%	+ 11%
	1996	15 min 39 sec	+ 01 min 56 sec	03 min 52 sec	+ 02 min 06 sec	24%	+ 12%
	1998	15 min 09 sec	+ 01 min 26 sec	04 min 02 sec	+ 02 min 16 sec	27%	+ 15%
	2000	18 min 29 sec	+ 04 min 46 sec	07 min 26 sec	+ 05 min 40 sec	37%	+ 25%
	2002	18 min 45 sec	+ 05 min 02 sec	07 min 02 sec	+ 05 min 16 sec	37%	+ 25%
	2004	15 min 51 sec	+ 02 min 08 sec	03 min 46 sec	+ 02 min 00 sec	23%	+ 11%
	2006	16 min 00 sec	+ 02 min 17 sec	03 min 06 sec	+ 01 min 20 sec	19%	+ 7%
	2008	17 min 08 sec	+ 03 min 25 sec	05 min 08 sec	+ 03 min 22 sec	28%	+ 16%
	2012	16 min 20 sec	+ 02 min 37 sec	04 min 03 sec	+ 02 min 17 sec	24%	+ 12%
2014	16 min 06 sec	+ 02 min 23 sec	03 min 45 sec	+ 01 min 59 sec	23%	+ 11%	
Broadway South	1986	14 min 08 sec	n/a	02 min 19 sec	n/a	16%	n/a
	1988	13 min 42 sec	- 00 min 26 sec	01 min 54 sec	- 00 min 25 sec	14%	- 2%
	1990	14 min 08 sec	- 00 min 00 sec	02 min 20 sec	+ 00 min 01 sec	16%	- 0%
	1992	14 min 15 sec	+ 00 min 07 sec	03 min 33 sec	+ 01 min 14 sec	25%	+ 9%
	1994	14 min 52 sec	+ 00 min 44 sec	03 min 10 sec	+ 00 min 51 sec	21%	+ 5%
	1996	14 min 34 sec	+ 00 min 26 sec	03 min 05 sec	+ 00 min 46 sec	21%	+ 5%
	1998	15 min 10 sec	+ 01 min 02 sec	03 min 53 sec	+ 01 min 34 sec	25%	+ 9%
	2000	18 min 11 sec	+ 04 min 03 sec	07 min 43 sec	+ 05 min 24 sec	40%	+ 24%
	2002	16 min 59 sec	+ 02 min 51 sec	06 min 04 sec	+ 03 min 45 sec	34%	+ 18%
	2004	14 min 05 sec	- 00 min 03 sec	02 min 43 sec	+ 00 min 24 sec	19%	+ 3%
	2006	14 min 33 sec	+ 00 min 25 sec	02 min 32 sec	+ 00 min 13 sec	17%	+ 1%
	2008	15 min 19 sec	+ 01 min 11 sec	03 min 16 sec	+ 00 min 57 sec	21%	+ 5%
	2012	14 min 51 sec	+ 00 min 43 sec	02 min 46 sec	+ 00 min 27 sec	18%	+ 2%
2014	15 min 07 sec	+ 00 min 59 sec	03 min 19 sec	+ 01 min 00 sec	21%	+ 5%	

Figure 9. Historic Travel Time from Previous Node (Broadway, Northbound)
(2014 data in Green, Previous Years in Grey)

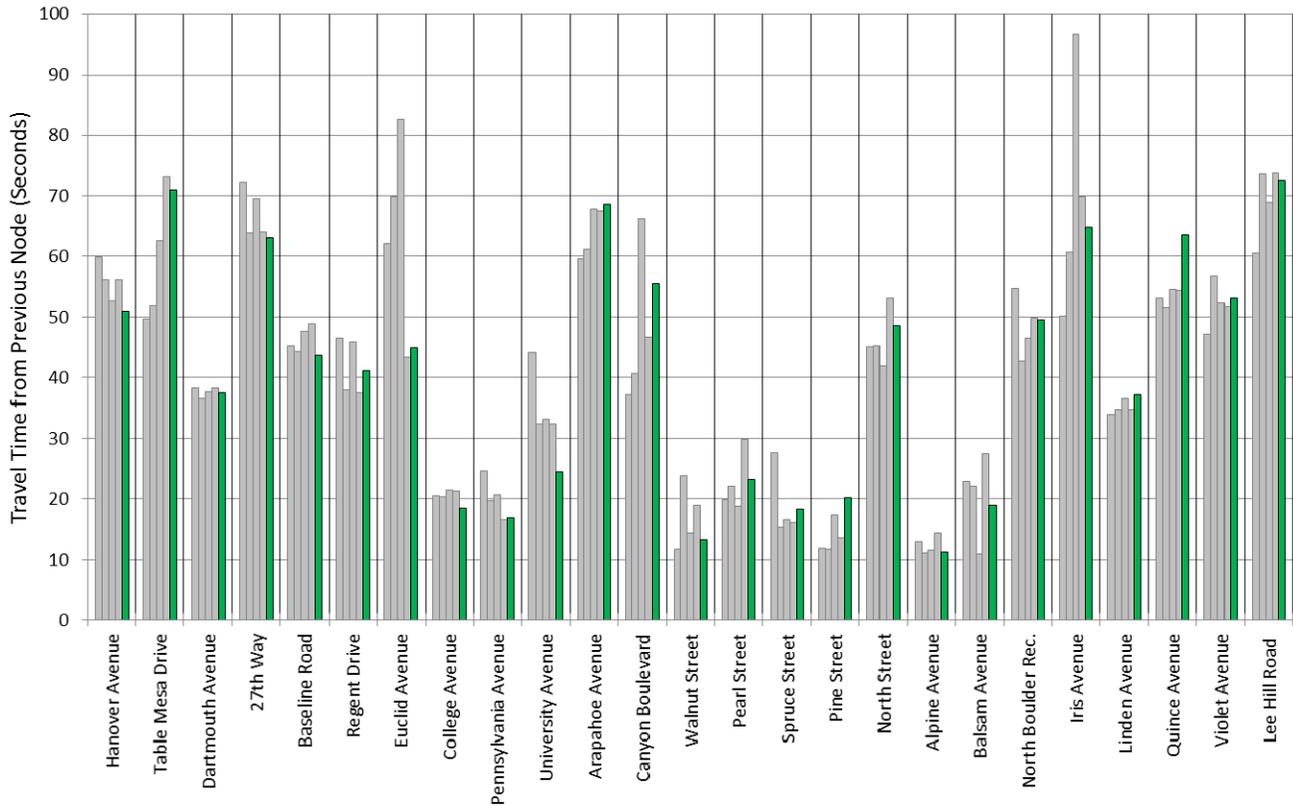
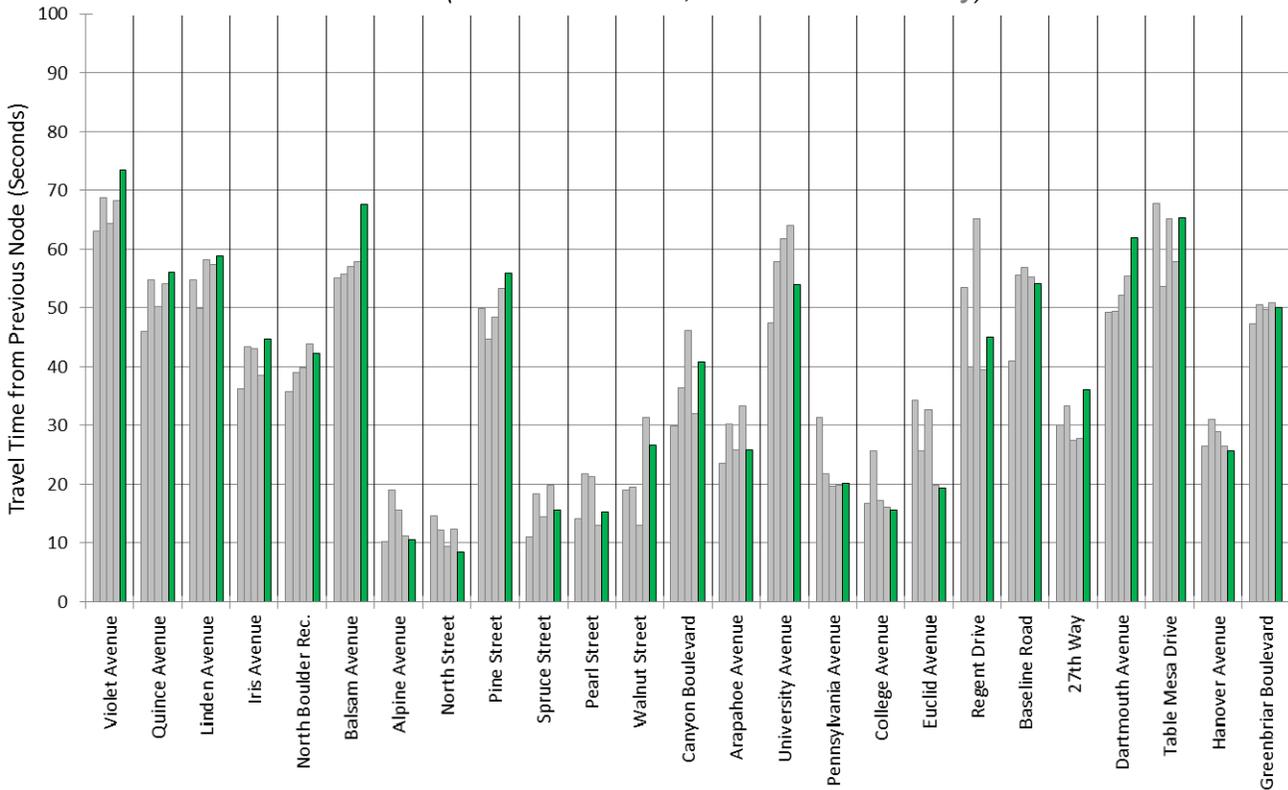


Figure 10. Historic Travel Time from Previous Node (Broadway, Southbound)
(2014 data in Green, Previous Years in Grey)



4.0 “Worst” Lights

Each year, the data collected in the Drive Time study are used to determine the ten most frequently stopped-at traffic signals in a given year. These results are categorized into a “ten worst” lights list (worst lights by chance of hitting the red traffic light). **Appendix II** displays the complete list along with lists of the “ten best” lights.

As shown in **Table 5** below, a red light was experienced during all westbound runs at the Arapahoe Avenue at 28th Street and Valmont Road at Folsom Street and during all eastbound runs at Valmont Road at 30th Street.

Table 5. “Worst” Lights

Worst Lights by Chance of Hitting the Traffic Light	
Intersection, Direction	Mean Chance in 2014
Arapahoe Ave at 28th St, Westbound	100%
Valmont St at 30th St, Eastbound	100%
Valmont St at Folsom St, Westbound	100%
Valmont St at 19th St, Eastbound	93%
Valmont St at 19th St, Westbound	87%
Arapahoe Ave at Broadway, Eastbound	86%
Valmont St at Foothills Pkwy, Westbound	80%
Arapahoe Ave at Folsom St, Eastbound	79%
Arapahoe Ave at 55th St, Eastbound	79%
Broadway at Iris Ave, Northbound	73%

5.0 Methodology

A similar methodology is used each year for the drive time studies, although the routes alternate from north/south to east/west. In 2004, a new data collection methodology was adopted which utilizes a hand-held GPS device, a laptop computer, and Tru-Traffic software (formerly known as TS-PP Draft) to record the travel time and delay data. This replaced the manual stop-watch method previously used by City staff from 1986 to 2003. Both the old and new methods involve one person who operates the vehicle and performs the data collection simultaneously. In contrast to the old method, however, the new GPS/laptop method does not require any effort on the part of the driver once the study has begun.

GPS coordinates for each traffic signal were mapped into the Tru-Traffic software prior to beginning travel time runs for the new year. Since there is an inherent margin of error in the GPS locations, several mapping runs were performed along each of the corridors to provide the

most accurate locations possible. Even so, there is generally a margin of error of 15 feet in all calculations. However, over many runs, the significance of these errors is diminished.

In 2014, 30 total runs were performed on each of the three study corridors per year (15 runs per direction per corridor per year). Trips are made at 7:30 am, 12:00pm, or 5:00pm to correspond with peak traffic periods. During an outing, a trip is made in one direction and then back in the opposite direction on the same corridor. During the 2014 data processing, it was discovered that there was one run during the noon period in the eastbound direction on Arapahoe Avenue and one morning run in the southbound direction on Broadway that had missing data and were removed from the evaluation. Prior to 2006, 60 runs were performed on each corridor per year. Standard deviation calculations indicate that the reduced number of runs has not affected annual result tabulations.

Previous to 2004, it is believed that travel time runs were collected by the City of Boulder on each corridor regardless of roadway construction, traffic accidents, severe weather, and all other factors. Travel time runs were not aborted under any of these conditions. Since 2004, this practice was changed. Now, travel time runs are aborted if there are any uncommon conditions that would cause delays typically not experienced along the corridor. This change was made to provide a more useful evaluation of the corridor signal system under the conditions it is designed to operate. Since lane closures, construction, accidents, etc. are special circumstances which significantly affect traffic flow, speeds, and delays, incorporating these conditions into the data set disables the ability to effectively evaluate corridor timing plans.

Routes

The east-west streets were historically studied in odd years (between 1987 and 2007). Due to recent budgetary considerations, the east-west streets were not studied in 2009, but were in 2010 and 2014. The north-south streets historically were studied in even years (up to 2008). Due to the budgetary considerations, they were not studied in 2010, but were in 2012 and 2014. The endpoints of the studied corridors are as follows:

- **Arapahoe Avenue:** 9th Street on the west and 65th Street on the east¹.
- **Valmont Road:** 9th Street on the west to 55th Street on the east.
- **Broadway:** Greenbriar Boulevard on the south and Lee Hill Road on the north².

¹ The section from 55th Street to 65th Street was removed from any historical comparisons in this report since the Arapahoe corridor studies did not include the Cherryvale, 63rd, and 65th Street intersections prior to 2005.

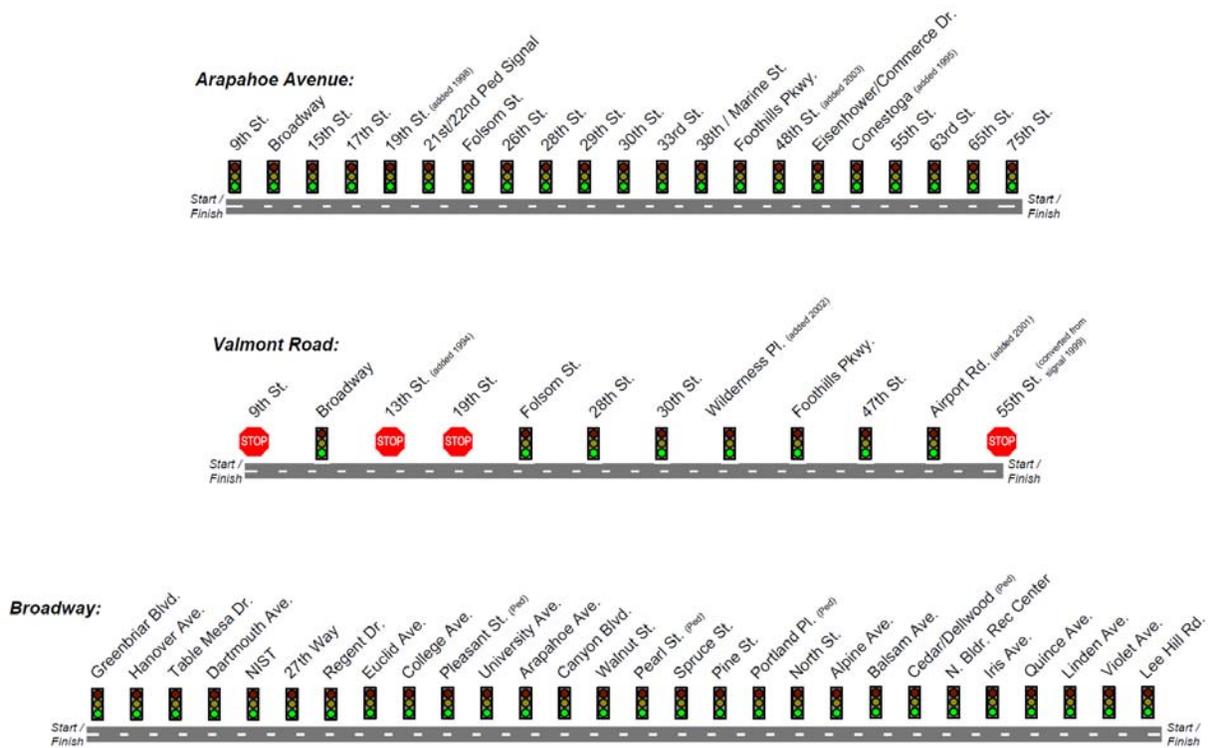
² Prior to 2004, the north end of the timing runs terminated at Violet Avenue. For this reason, the data from Violet Avenue to Lee Hill Road is excluded from historical comparisons.

Figure 11 provides a map showing the study corridor limits and indicates the traffic control per intersections. Figure 12 illustrates the traffic control at every control point per corridor.

Figure 11. Corridor Map



Figure 12. Drive Time Map for Study Routes



Note: Historical comparisons in this report were compiled with the Arapahoe Avenue corridor terminating at 55th Street on the east end to be consistent with previous years. However, between 2005 and 2010, travel time runs have extended east to 65th Street and in 2014 it was extended to 75th Street. Historical comparisons for the Broadway corridor terminated at Violet Avenue on the north end to be consistent with previous years. However, since 2004, travel time runs have extended north to Lee Hill Road. Travel time data for the Arapahoe Avenue from 55th Street to 75th Street nodes and Broadway north of Violet Avenue is included in the **Appendix**.

Weighting

In 1992, 1993, and 2004 not all the scheduled drive time trips for the year were completed. In 1992 there was a major construction project on Broadway which if included in the study would unfairly bias the results for 1992. In 1993, misunderstandings with research assistants resulted in missed trips. In 2004, budget constraints resulted in no data collected for the first four months of the year. Thus, to compensate for the missing data, the results were weighted statistically.

The data were weighted by street driven, direction of trip, and start time so that there were an equal number of trips in each direction on each street for each time of day across all the years. This counterbalances the effect these variables may have had on the average trip time.

Appendix I:

Drive Time Comparison for All Studied Years

Table I-1	Comparison of Drive Time by Street across All Years
Table I-2	Comparison of Drive Time by Street and Direction across All Years
Table I-3	Mean Time Stopped at Four Boulder Intersections
Table I-4	Probability of Being Stopped at Four Boulder Intersections

Table I-1
Comparison of Drive Time by Street Across all Years [SHORT]

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips
Arapahoe Avenue	1987	3.1 miles	09 min 07 sec	20.1	13	5.8	02 min 46 sec	30%	42
	1989	3.1 miles	10 min 11 sec	18.2	13	5.6	03 min 27 sec	33%	48
	1991	3.1 miles	10 min 04 sec	18.3	14	5.9	03 min 30 sec	34%	59
	1993	3.1 miles	11 min 03 sec	17.0	14	6.0	04 min 31 sec	38%	26
	1995	3.1 miles	10 min 45 sec	17.3	15	6.3	04 min 08 sec	37%	61
	1997	3.1 miles	09 min 43 sec	18.9	15	5.2	03 min 10 sec	33%	59
	1999	3.1 miles	10 min 23 sec	18.1	16	4.8	03 min 59 sec	36%	58
	2001	3.1 miles	17 min 47 sec	10.4	16	8.8	05 min 18 sec	30%	60
	2003	3.1 miles	17 min 14 sec	10.5	17	8.3	data not avail.	29%	60
	2005	3.1 miles	09 min 35 sec	19.4	17	5.1	03 min 18 sec	33%	49
	2007	3.1 miles	09 min 06 sec	20.2	17	4.6	02 min 50 sec	30%	31
	2010	3.1 miles	09 min 38 sec	19.9	17	5.0	03 min 13 sec	32%	30
2014	3.1 miles	09 min 26 sec	20.3	17	4.6	03 min 03 sec	31%	29	
Valmont Road	1987	3.2 miles	10 min 23 sec	18.9	8	6.0	03 min 10 sec	30%	42
	1989	3.2 miles	09 min 52 sec	19.9	8	5.5	03 min 02 sec	30%	48
	1991	3.2 miles	09 min 36 sec	20.3	8	5.3	02 min 52 sec	29%	59
	1993	3.2 miles	10 min 14 sec	19.2	8	5.6	03 min 16 sec	31%	22
	1995	3.2 miles	10 min 16 sec	19.1	9	6.7	03 min 24 sec	32%	62
	1997	3.2 miles	10 min 00 sec	19.5	9	6.0	03 min 07 sec	31%	60
	1999	3.2 miles	09 min 50 sec	19.9	9	5.5	03 min 07 sec	31%	58
	2001	3.2 miles	08 min 57 sec	21.8	10 / 11	5.0	02 min 51 sec	31%	60
	2003	3.2 miles	08 min 12 sec	23.5	11	4.7	02 min 23 sec	25%	60
	2005	3.2 miles	10 min 13 sec	19.5	11	6.8	03 min 05 sec	29%	52
	2007	3.2 miles	10 min 12 sec	21.6	11	6.6	03 min 02 sec	28%	31
	2010	3.2 miles	10 min 04 sec	22.2	11	6.3	03 min 03 sec	29%	30
2014	3.2 miles	10 min 16 sec	21.7	11	6.4	03 min 10 sec	30%	30	
Broadway	1986	6.0 miles	13 min 56 sec	26.2	22	6.4	02 min 02 sec	14%	54
	1988	6.0 miles	14 min 33 sec	25.3	22	6.1	02 min 25 sec	16%	41
	1990	6.0 miles	14 min 30 sec	25.1	22	5.9	02 min 35 sec	18%	57
	1992	6.0 miles	14 min 47 sec	25.0	22 / 21	6.5	03 min 42 sec	24%	47
	1994	6.0 miles	15 min 22 sec	23.7	21 / 22 / 23	6.7	03 min 28 sec	22%	57
	1996	6.0 miles	15 min 06 sec	24.2	24 / 23	6.9	03 min 29 sec	23%	59
	1998	6.0 miles	15 min 09 sec	24.0	22 / 23	7.1	03 min 57 sec	26%	61
	2000	6.0 miles	18 min 20 sec	21.4	23	10.2	07 min 34 sec	38%	59
	2002	6.0 miles	17 min 49 sec	28.1	24	8.6	06 min 33 sec	35%	60
	2004	6.2 miles	15 min 01 sec	25.1	24 / 25	7.6	03 min 17 sec	21%	28
	2006	6.2 miles	15 min 19 sec	24.9	24 / 25	7.1	02 min 50 sec	18%	28
	2008	6.2 miles	16 min 14 sec	26.2	24 / 25	7.5	04 min 12 sec	25%	30
	2012	6.2 miles	15 min 36 sec	26.1	26*	7.5	03 min 24 sec	21%	30
2014	6.2 miles	15 min 38 sec	26.2	26*	7.1	03 min 33 sec	22%	29	

* Additional signals (potential stops) at 18th (NB and SB), 17th (NB & SB), and Euclid (NB only) were added in 2012 with the completion of the Broadway (Euclid to 18th) transportation improvements project.

Table I-2a
Comparison of Drive Time by Street and Direction Across all Years [SHORT]

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible at Signals	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips
Arapahoe Avenue East	1987	3.1 miles	09 min 50 sec	18.5	13	6.1	03 min 00 sec	30%	21
	1989	3.1 miles	10 min 18 sec	18.2	13	5.8	03 min 37 sec	33%	27
	1991	3.1 miles	10 min 05 sec	18.1	14	6.3	03 min 35 sec	35%	28
	1993	3.1 miles	10 min 00 sec	18.1	14	6.2	03 min 46 sec	38%	15
	1995	3.1 miles	11 min 04 sec	16.8	15	6.8	04 min 23 sec	38%	28
	1997	3.1 miles	09 min 49 sec	18.6	15	5.5	03 min 28 sec	35%	34
	1999	3.1 miles	10 min 30 sec	18.0	16	4.6	04 min 07 sec	36%	29
	2001	3.1 miles	17 min 32 sec	10.6	16	8.9	05 min 12 sec	29%	30
	2003	3.1 miles	16 min 51 sec	10.7	17	8.2	04 min 57 sec	29%	30
	2005	3.1 miles	09 min 52 sec	18.8	17	5.4	03 min 40 sec	35%	26
	2007	3.1 miles	09 min 19 sec	19.7	17	4.4	03 min 05 sec	32%	16
	2010	3.1 miles	09 min 48 sec	20.0	17	4.7	03 min 28 sec	33%	15
2014	3.1 miles	09 min 58 sec	19.4	17	4.4	03 min 38 sec	34%	14	
Arapahoe Avenue West	1987	3.1 miles	08 min 24 sec	21.8	13	5.6	02 min 34 sec	30%	22
	1989	3.1 miles	10 min 04 sec	18.2	13	5.4	03 min 18 sec	32%	21
	1991	3.1 miles	10 min 03 sec	18.4	14	5.5	03 min 22 sec	32%	31
	1993	3.1 miles	12 min 06 sec	16.0	14	5.8	05 min 00 sec	38%	9
	1995	3.1 miles	10 min 26 sec	17.9	15	5.8	03 min 45 sec	35%	33
	1997	3.1 miles	09 min 36 sec	19.2	15	4.9	02 min 53 sec	30%	25
	1999	3.1 miles	10 min 18 sec	18.1	16	5.1	03 min 51 sec	36%	29
	2001	3.1 miles	18 min 01 sec	10.1	16	8.7	05 min 25 sec	29%	30
	2003	3.1 miles	17 min 37 sec	10.4	17	8.5	04 min 48 sec	29%	30
	2005	3.1 miles	09 min 15 sec	20.0	17	4.8	02 min 53 sec	30%	23
	2007	3.1 miles	08 min 51 sec	20.7	17	4.9	02 min 33 sec	28%	15
	2010	3.1 miles	09 min 28 sec	19.9	17	5.2	02 min 59 sec	31%	15
2014	3.1 miles	08 min 55 sec	21.1	17	4.7	02 min 30 sec	27%	15	

Table I-2b
Comparison of Drive Time by Street and Direction Across all Years

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips
Valmont Road East	1987	3.2 miles	10 min 12 sec	19.0	8	5.1	02 min 31 sec	24%	22
	1989	3.2 miles	09 min 54 sec	19.7	8	5.5	02 min 58 sec	30%	21
	1991	3.2 miles	09 min 14 sec	20.9	8	5.2	02 min 41 sec	29%	31
	1993	3.2 miles	10 min 03 sec	19.3	8	5.7	03 min 02 sec	31%	8
	1995	3.2 miles	10 min 27 sec	18.6	9	7.0	03 min 48 sec	35%	33
	1997	3.2 miles	09 min 48 sec	19.8	9	6.2	02 min 59 sec	30%	24
	1999	3.2 miles	09 min 34 sec	20.4	9	5.3	03 min 05 sec	32%	28
	2001	3.2 miles	08 min 55 sec	21.8	10	5.0	05 min 37 sec	32%	30
	2003	3.2 miles	08 min 12 sec	23.4	11	4.1	02 min 58 sec	31%	30
	2005	3.2 miles	09 min 48 sec	20.2	11	6.5	02 min 47 sec	27%	26
	2007	3.2 miles	09 min 57 sec	22.2	11	6.4	02 min 49 sec	27%	16
	2010	3.2 miles	09 min 47 sec	22.6	11	6.5	02 min 49 sec	27%	15
	2014	3.2 miles	10 min 09 sec	22.2	11	5.9	03 min 07 sec	30%	15
Valmont Road West	1987	3.2 miles	10 min 34 sec	18.9	8	6.9	03 min 49 sec	35%	21
	1989	3.2 miles	09 min 50 sec	20.0	8	5.6	03 min 06 sec	30%	27
	1991	3.2 miles	09 min 57 sec	19.6	8	5.3	03 min 03 sec	30%	28
	1993	3.2 miles	10 min 26 sec	19.0	8	5.6	03 min 30 sec	32%	14
	1995	3.2 miles	10 min 04 sec	19.5	9	6.4	02 min 59 sec	28%	29
	1997	3.2 miles	10 min 11 sec	19.2	9	5.8	03 min 16 sec	31%	36
	1999	3.2 miles	10 min 05 sec	19.4	9	5.6	03 min 08 sec	30%	30
	2001	3.2 miles	08 min 59 sec	21.8	10 / 11	4.9	02 min 44 sec	30%	30
	2003	3.2 miles	08 min 02 sec	23.8	11	4.3	02 min 13 sec	28%	30
	2005	3.2 miles	10 min 37 sec	18.8	11	7.0	03 min 23 sec	30%	26
	2007	3.2 miles	10 min 28 sec	21.0	11	6.9	03 min 17 sec	30%	15
	2010	3.2 miles	10 min 20 sec	21.7	11	6.1	03 min 16 sec	30%	15
	2014	3.2 miles	10 min 24 sec	21.1	11	6.8	03 min 13 sec	30%	15

Table I-2c
Comparison of Drive Time by Street and Direction Across all Years [SHORT]

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible at Signals	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips
Broadway North	1986	6.0 miles	13 min 43 sec	26.6	22	5.5	01 min 46 sec	12%	27
	1988	6.0 miles	15 min 24 sec	24.0	2	6.6	02 min 57 sec	18%	19
	1990	6.0 miles	14 min 53 sec	24.5	22	6.0	02 min 50 sec	19%	30
	1992	6.0 miles	15 min 20 sec	24.1	22 / 21	6.2	03 min 51 sec	23%	28
	1994	6.0 miles	15 min 52 sec	23.0	21 / 22	7.1	03 min 46 sec	23%	30
	1996	6.0 miles	15 min 39 sec	23.4	23	7.1	03 min 52 sec	24%	29
	1998	6.0 miles	15 min 09 sec	24.0	23	7.0	04 min 02 sec	27%	33
	2000	6.0 miles	18 min 29 sec	20.8	24	10.0	07 min 26 sec	37%	31
	2002	6.0 miles	18 min 45 sec	26.8	24	9.2	07 min 02 sec	37%	30
	2004	6.2 miles	15 min 51 sec	24.2	24	8.8	03 min 46 sec	23%	15
	2006	6.2 miles	16 min 00 sec	24.8	24	8.2	03 min 06 sec	18%	15
	2008	6.2 miles	17 min 08 sec	25.7	24	8.3	05 min 08 sec	28%	15
	2012	6.2 miles	16 min 20 sec	25.4	26	8.1	04 min 03 sec	24%	15
	2014	6.2 miles	16 min 06 sec	25.9	26	7.4	03 min 45 sec	23%	15
Broadway South	1986	6.0 miles	14 min 08 sec	25.8	22	7.3	02 min 19 sec	16%	27
	1988	6.0 miles	13 min 42 sec	26.5	22	5.6	01 min 54 sec	14%	22
	1990	6.0 miles	14 min 08 sec	25.7	22	5.7	02 min 20 sec	16%	27
	1992	6.0 miles	14 min 15 sec	25.9	22	6.8	03 min 33 sec	25%	19
	1994	6.0 miles	14 min 52 sec	24.5	22 / 23	6.3	03 min 10 sec	21%	27
	1996	6.0 miles	14 min 34 sec	24.9	24	6.7	03 min 05 sec	21%	30
	1998	6.0 miles	15 min 10 sec	24.1	24	7.3	03 min 53 sec	25%	28
	2000	6.0 miles	18 min 11 sec	22.0	24	10.4	07 min 43 sec	40%	28
	2002	6.0 miles	16 min 59 sec	29.3	24	7.6	06 min 04 sec	34%	30
	2004	6.2 miles	14 min 05 sec	26.1	25	6.2	02 min 43 sec	19%	13
	2006	6.2 miles	14 min 33 sec	25.0	25	5.8	02 min 32 sec	17%	13
	2008	6.2 miles	15 min 19 sec	26.7	25	6.5	03 min 16 sec	21%	15
	2012	6.2 miles	14 min 51 sec	26.7	26	7.0	02 min 46 sec	18%	15
	2014	6.2 miles	15 min 07 sec	26.5	26	6.9	03 min 19 sec	21%	14

**Table I-3
Mean Time Stopped at Four Boulder Intersections**

Intersection	Direction	Mean Time Spent Stopped at Intersection (seconds)																										
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010	2012	2014	Mean
Broadway and Arapahoe Ave	East		45		41		45		34		41		40		75		37		35		54		26		47		36	43
	West		44		38		46		46		36		36		61		37		34		35		39		36		33	40
	North	7		27		35		56		22		32		47		54		74		38		29		52		38	50	40
	South	31		20		21		18		34		43		42		55		69		41		45		35		49	34	38
Broadway and Balsam Ave	East		28		23		31		25		29		30		31		33		32		39		42		37			32
	West		30		30		32		30		29		36		34		30		31		41		36		36			33
	North	12		22		28		26		27		28		29		31		51		33		19		0		28	19	25
	South	13		11		31		26		28		22		28		29		64		23		17		29		15	41	27
28th St and Arapahoe Ave	East		38		54		43		51		39		52		66		46		43		58		62		58		71	52
	West		61		64		62		66		48		48		64		49		47		40		49		53		27	52
	North	27		27		37		38		50		38		52		51		65		50		84		70		77	51	
	South	38		36		65		71		56		58		61		61		59		29		50		38		31	50	
28th St and Valmont Rd	East		39		50		40		30		41		34		59		39		37		48		79		38		23	43
	West		41		54		39		64		42		47		56		41		40		55		74		60		30	49
	North	20		21		37		47		43		43		72		71		56		38		47		33		58	45	
	South	26		26		37		39		34		36		47		47		53		37		44		39		40	39	

**Table I-4
Probability of Being Stopped at Four Boulder Intersections**

Intersection	Direction	Chance of Stopping at the Intersection (percent)																										
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010	2012	2014	Mean
Broadway and Arapahoe Ave	East		90%		81%		82%		87%		82%		97%		62%		45%		43%		76%		50%		53%		86%	72%
	West		77%		86%		77%		56%		70%		88%		93%		42%		41%		67%		93%		73%		67%	72%
	North	15%		42%		13%		54%		27%		59%		61%		66%		77%		80%		80%		67%		80%	53%	55%
	South	26%		36%		37%		47%		33%		60%		61%		88%		76%		15%		23%		20%		27%	21%	41%
Broadway and Balsam Ave	East		77%		76%		65%		38%		76%		79%		68%		28%		27%		85%		63%		80%			64%
	West		81%		93%		79%		71%		83%		75%		80%		28%		26%		88%		93%		67%			72%
	North	26%		26%		33%		36%		33%		31%		30%		36%		27%		33%		40%		0%		53%	27%	31%
	South	41%		9%		41%		42%		56%		50%		50%		28%		23%		62%		38%		40%		60%	50%	42%
28th St and Arapahoe Ave	East		33%		52%		68%		73%		71%		68%		69%		43%		41%		72%		88%		73%		50%	62%
	West		18%		48%		58%		78%		64%		48%		38%		43%		40%		50%		53%		53%		100%	53%
	North	75%		61%		81%		75%		65%		71%		77%		86%		70%		33%		80%		40%		67%	68%	
	South	93%		82%		67%		67%		77%		75%		77%		67%		56%		53%		63%		47%		47%	67%	
28th St and Valmont Rd	East		68%		81%		84%		100%		88%		83%		71%		25%		24%		54%		50%		47%		33%	62%
	West		90%		81%		82%		64%		72%		75%		57%		32%		31%		65%		53%		60%		60%	63%
	North	61%		22%		44%		40%		54%		58%		65%		81%		86%		40%		55%		60%		47%	55%	
	South	89%		71%		67%		63%		74%		50%		54%		86%		83%		13%		19%		13%		33%	55%	

Appendix II:

Drive Time 2014

Table II.1	Time Traveled (2014)
Table II.2	Number of Stops (2014)
Table II.3	Time Stopped (2014)
Table II.4	Drive Time by Time of Day (2014)
Table II.5	Ten Worst Intersections by Chances of Being Stopped (2014)
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Table II.9	Drive Time and Speed between Intersections, Arapahoe Avenue (2014)
Table II.10	Drive Time and Speed between Intersections, Valmont Road (2014)
Table II.11	Drive Time and Speed between Intersections, Broadway (2014)

Table II.1: Time Traveled (2014)

	Mean Total Trip Time	Shortest Trip Time	Longest Trip Time	Trip Distance (miles)	Average Speed (mph)
Arapahoe Ave					
East	14 min 00 sec	10 min 27 sec	17 min 43 sec	5.6	28.4
West	13 min 09 sec	11 min 30 sec	16 min 08 sec	5.6	28.8
Valmont Rd					
East	10 min 09 sec	08 min 36 sec	11 min 30 sec	3.2	22.2
West	10 min 24 sec	08 min 42 sec	16 min 42 sec	3.2	21.1
Broadway					
North	17 min 17 sec	14 min 43 sec	20 min 21 sec	6.7	25.9
South	16 min 21 sec	13 min 44 sec	19 min 21 sec	6.7	27.1

Note :

*Arapahoe Avenue - The above data includes 63rd, 65th, and 75th Streets intersections whereas **Table 1** within the report text does not extend east of 55th Street, for historical comparison purposes. The extension to 75th Street was added in 2014, which added 1.2 miles to the corridor length.*

*Broadway - The above data includes Lee Hill Drive whereas **Table 1** does not extend north of Violet Avenue, for historical comparison purposes.*

Table II.2: Number of Stops (2014)

	Total Stops Possible	Mean Number of Stops	Fewest Stops	Most Stops	Mean Chance of Stopping	Number of Trips
Arapahoe Ave						
East	21	6.2	2	12	30%	14
West	21	5.9	3	9	28%	15
Valmont Rd						
East	11	5.9	3	11	54%	15
West	11	6.8	4	11	62%	15
Broadway						
North	26	7.7	4	12	31%	15
South	26	6.9	4	11	27%	14

Note :

*Arapahoe Avenue - The above data includes 63rd, 65th, and 75th Streets intersections whereas **Table 1** within the report text does not extend east of 55th Street, for historical comparison purposes. The extension to 75th Street was added in 2014, which added 1.2 miles to the corridor length.*

*Broadway - The above data includes Lee Hill Drive whereas **Table 1** does not extend north of Violet Avenue, for historical comparison purposes.*

Table II.3: Time Stopped (2014)

	Mean Percent of Time Stopped	Mean Total Time Stopped	Shortest Time Stopped	Longest Time Stopped
Arapahoe Ave				
East	27%	04 min 01 sec	01 min 22 sec	07 min 18 sec
West	22%	03 min 02 sec	01 min 36 sec	05 min 17 sec
Valmont Rd				
East	30%	03 min 07 sec	01 min 40 sec	04 min 24 sec
West	30%	03 min 13 sec	01 min 36 sec	09 min 14 sec
Broadway				
North	22%	03 min 51 sec	02 min 03 sec	06 min 03 sec
South	20%	03 min 19 sec	01 min 10 sec	05 min 57 sec

Note:

*Arapahoe Avenue - The above data includes 63rd, 65th, and 75th Streets intersections whereas **Table 1** within the report text does not extend east of 55th Street, for historical comparison purposes. The extension to 75th Street was added in 2014, which added 1.2 miles to the corridor length.*

Broadway - The above data includes Lee Hill Drive whereas Table 1 does not extend north of Violet Avenue, for historical comparison purposes.

Table II.4: Drive Time by Time of Day (2014)

	Mean Total Trip Time	Mean Number of Stops	Mean Time Stopped
Arapahoe Ave, East			
7:30 AM	12 min 19 sec	4.6	02 min 59 sec
12:00 Noon	12 min 53 sec	5.0	02 min 46 sec
5:00 PM	16 min 35 sec	8.8	06 min 02 sec
Arapahoe Ave, West			
7:30 AM	12 min 36 sec	5.5	02 min 34 sec
12:00 Noon	12 min 25 sec	5.8	02 min 22 sec
5:00 PM	14 min 29 sec	6.4	04 min 13 sec
Valmont Rd, East			
7:30 AM	09 min 58 sec	6.6	03 min 00 sec
12:00 Noon	09 min 48 sec	4.6	02 min 45 sec
5:00 PM	10 min 40 sec	6.6	03 min 35 sec
Valmont Rd, West			
7:30 AM	09 min 54 sec	6.0	02 min 48 sec
12:00 Noon	09 min 29 sec	6.6	02 min 24 sec
5:00 PM	11 min 48 sec	7.8	04 min 28 sec
Broadway, North			
7:30 AM	15 min 57 sec	6.2	02 min 52 sec
12:00 Noon	16 min 53 sec	7.0	03 min 37 sec
5:00 PM	19 min 00 sec	10.0	05 min 05 sec
Broadway, South			
7:30 AM	17 min 49 sec	8.5	04 min 11 sec
12:00 Noon	14 min 59 sec	5.8	02 min 20 sec
5:00 PM	16 min 31 sec	6.6	03 min 37 sec

Note :

Arapahoe Avenue - The above data includes 63rd, 65th, and 75th Streets intersections whereas Table 1 within the report text does not extend east of 55th Street, for historical comparison purposes. The extension to 75th Street was added in 2014, which added 1.2 miles to the corridor length.

Broadway - The above data includes Lee Hill Avenue whereas Table 1 does not extend north of Violet Avenue, for historical comparison purposes.

Table II.5: Ten Worst Intersections by Chances of Being Stopped (2014)

Intersection	Direction	Chances of Being Stopped
Arapahoe Ave at 28th St	Westbound	100%
Valmont St at 30th St	Eastbound	100%
Valmont St at Folsom St	Westbound	100%
Valmont St at 19th St	Eastbound	93%
Valmont St at 19th St	Westbound	87%
Arapahoe Ave at Broadway	Eastbound	86%
Valmont St at Foothills Pkwy	Westbound	80%
Arapahoe Ave at Folsom St	Eastbound	79%
Arapahoe Ave at 55th St	Eastbound	79%
Broadway at Iris Ave	Northbound	73%

Note: List above does not include all-way stop intersections.

Table II.6a: Ten Worst Intersections by Length of Stop (2014)*

Intersection	Direction	Mean Length of Stop
Arapahoe Ave at 30th St	Westbound	01 min 15 sec
Arapahoe Ave at 28th St	Eastbound	01 min 11 sec
Valmont St at Foothills Pkwy	Eastbound	01 min 10 sec
Arapahoe Ave at Foothills Pkwy	Westbound	01 min 06 sec
Arapahoe Ave at 15th St	Eastbound	01 min 04 sec
Arapahoe Ave at 63rd St	Eastbound	01 min 02 sec
Arapahoe Ave at Folsom St	Westbound	01 min 00 sec
Arapahoe Ave at 55th St	Eastbound	00 min 58 sec
Valmont St at Folsom St	Eastbound	00 min 58 sec
Broadway at Canyon Blvd	Northbound	00 min 53 sec

Table II.6b: Ten Worst Intersections by Length of Stop (2014)**

Intersection	Direction	Mean Length of Stop
Valmont St at Foothills Pkwy	Eastbound	00 min 47 sec
Valmont St at Folsom St	Westbound	00 min 46 sec
Arapahoe Ave at 55th St	Eastbound	00 min 46 sec
Valmont St at Folsom St	Eastbound	00 min 42 sec
Valmont St at 30th St	Eastbound	00 min 38 sec
Broadway at Canyon Blvd	Northbound	00 min 36 sec
Arapahoe Ave at 28th St	Eastbound	00 min 35 sec
Broadway at Table Mesa Drive	Northbound	00 min 35 sec
Arapahoe Ave at Folsom	Eastbound	00 min 31 sec
Arapahoe Ave at Broadway	Eastbound	00 min 30 sec

* Table II.6a calculations include stopped time only for runs where a stop at this intersection occurred.

** Table II.6b includes ALL runs in averaged stopped times, including runs where no stop occurred (thus 0:00 stopped time included in mean calculation)

Table II.7: Ten Best Intersections by Chances of Being Stopped (2014)

Intersection	Direction	Chances of Being Stopped
Arapahoe Ave at 26th St	East and West	0%
Arapahoe Ave at 29th St	Eastbound	0%
Arapahoe Ave at 30th St	Eastbound	0%
Arapahoe Ave at 33rd St	Eastbound	0%
Arapahoe Ave at 48th St	Eastbound	0%
Arapahoe Ave at Eisenhower Dr	East and West	0%
Arapahoe Ave at Conestoga St	Westbound	0%
Arapahoe Ave at 38th St	Westbound	0%
Broadway at College Ave	North and South	0%
Broadway at Pennsylvania Ave	Northbound	0%
7 others tied	-	0%

Table II.8: Ten Best Intersections by Length of Stop (2014)

Intersection	Direction	Mean Length of Stop
Arapahoe Ave at 26th St	East and West	00 min 00 sec
Arapahoe Ave at 29th St	Eastbound	00 min 00 sec
Arapahoe Ave at 30th St	Eastbound	00 min 00 sec
Arapahoe Ave at 33rd St	Eastbound	00 min 00 sec
Arapahoe Ave at 48th St	Eastbound	00 min 00 sec
Arapahoe Ave at Eisenhower Dr	East and West	00 min 00 sec
Arapahoe Ave at Conestoga St	Westbound	00 min 00 sec
Arapahoe Ave at 38th St	Westbound	00 min 00 sec
Broadway at College Ave	North and South	00 min 00 sec
Broadway at Pennsylvania Ave	Northbound	00 min 00 sec
7 others tied	-	00 min 00 sec

Table II.9: Drive Time and Speed Between Intersections, Arapahoe Avenue (2014)

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
Arapahoe Avenue East	9th Street	n/a	n/a
	Broadway	16.0	00 min 16 sec
	15th Street	18.3	00 min 18 sec
	17th Street	13.5	00 min 13 sec
	19th Street	21.3	00 min 21 sec
	Naropa Ped Crossing	22.4	00 min 22 sec
	Folsom Street	14.6	00 min 15 sec
	26th Street	30.6	00 min 31 sec
	28th Street	19.2	00 min 19 sec
	29th Street	28.5	00 min 29 sec
	30th Street	31.7	00 min 32 sec
	33rd Street	34.3	00 min 34 sec
	38th Street	36.2	00 min 36 sec
	Foothills Parkway	29.2	00 min 29 sec
	48th Street	36.1	00 min 36 sec
	Commerce St/Eisenhower Dr	37.8	00 min 38 sec
	Conestoga Street	36.8	00 min 37 sec
55th Street	14.3	00 min 14 sec	
Cherryvale Road	41.2	00 min 41 sec	
63rd Street	38.5	00 min 38 sec	
65th Street	37.3	00 min 37 sec	
75th Street	39.2	00 min 39 sec	
Arapahoe Avenue West	75th Street	n/a	n/a
	65th Street	39.9	00 min 40 sec
	63rd Street	36.8	00 min 37 sec
	Cherryvale Road	41.1	00 min 41 sec
	55th Street	32.0	00 min 32 sec
	Conestoga Street	33.3	00 min 33 sec
	Commerce St/Eisenhower Dr	41.8	00 min 42 sec
	48th Street	40.1	00 min 40 sec
	Foothills Parkway	34.4	00 min 34 sec
	38th Street	36.1	00 min 36 sec
	33rd Street	34.1	00 min 34 sec
	30th Street	25.3	00 min 25 sec
	29th Street	28.7	00 min 29 sec
	28th Street	10.1	00 min 10 sec
	26th Street	27.2	00 min 27 sec
	Folsom Street	19.9	00 min 20 sec
	Naropa Ped Crossing	21.7	00 min 22 sec
19th Street	21.5	00 min 22 sec	
17th Street	19.8	00 min 20 sec	
15th Street	23.4	00 min 23 sec	
Broadway	17.6	00 min 18 sec	
9th Street	19.9	00 min 20 sec	

Table II.10: Drive Time and Speed Between Intersections, Valmont Road (2014)

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
Valmont Road East	9th Street	n/a	n/a
	Broadway	16.2	00 min 51 sec
	13th Street	14.2	00 min 26 sec
	19th Street	20.1	01 min 14 sec
	Folsom Street	17.2	02 min 04 sec
	28th Street	24.9	00 min 42 sec
	30th Street	13.6	01 min 09 sec
	Wilderness Place	27.3	00 min 46 sec
	Foothills Parkway	12.5	01 min 08 sec
	47th Street	28.3	00 min 12 sec
	Airport Road	35.3	00 min 45 sec
	55th Street	34.6	00 min 51 sec
Valmont Road West	55th Street	n/a	n/a
	Airport Road	30.5	00 min 59 sec
	47th Street	29.7	01 min 08 sec
	Foothills Parkway	13.7	00 min 32 sec
	Wilderness Place	29.0	00 min 19 sec
	30th Street	23.3	01 min 02 sec
	28th Street	21.8	00 min 49 sec
	Folsom Street	11.7	01 min 22 sec
	19th Street	19.3	01 min 48 sec
	13th Street	21.5	01 min 09 sec
	Broadway	12.5	00 min 41 sec
	9th Street	19.8	00 min 36 sec

Table II.11: Drive Time and Speed Between Intersections, Broadway (2014)

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
Broadway North	Greenbriar Boulevard	n/a	n/a
	Hanover Avenue	37.8	00 min 56 sec
	Table Mesa Drive	19.4	01 min 08 sec
	Dartmouth Avenue	38.1	00 min 42 sec
	27th Way	34.2	01 min 02 sec
	Baseline Road	27.7	00 min 44 sec
	Regent Drive	29.6	00 min 44 sec
	Euclid Avenue	23.7	00 min 44 sec
	College Avenue	31.4	00 min 18 sec
	Pennsylvania Avenue	24.8	00 min 20 sec
	University Avenue	23.0	00 min 27 sec
	Arapahoe Avenue	20.0	01 min 01 sec
	Canyon Boulevard	12.0	00 min 58 sec
	Walnut Street	24.0	00 min 13 sec
	Pearl Street	19.8	00 min 22 sec
	Spruce Street	21.1	00 min 20 sec
	Pine Street	18.4	00 min 22 sec
	North Street	25.5	00 min 45 sec
	Alpine Avenue	27.7	00 min 12 sec
	Balsam Avenue	23.7	00 min 19 sec
Broadway South	North Boulder Rec.	27.9	00 min 49 sec
	Iris Avenue	19.3	01 min 06 sec
	Linden Avenue	30.9	00 min 39 sec
	Quince Avenue	28.8	01 min 04 sec
	Violet Avenue	32.0	00 min 51 sec
	Lee Hill Road	26.7	01 min 11 sec
	Lee Hill Road	n/a	n/a
	Violet Avenue	25.7	01 min 13 sec
	Quince Avenue	30.9	00 min 55 sec
	Linden Avenue	31.0	00 min 59 sec
	Iris Avenue	27.4	00 min 44 sec
	North Boulder Rec.	28.2	00 min 40 sec
	Balsam Avenue	23.4	01 min 07 sec
	Alpine Avenue	29.0	00 min 11 sec
	North Street	30.8	00 min 09 sec
	Pine Street	23.8	00 min 55 sec
	Spruce Street	23.4	00 min 14 sec
	Pearl Street	22.0	00 min 16 sec
	Walnut Street	17.1	00 min 28 sec
	Canyon Boulevard	12.7	00 min 38 sec
Arapahoe Avenue	21.9	00 min 26 sec	
University Avenue	19.9	00 min 56 sec	
Pennsylvania Avenue	25.1	00 min 20 sec	
College Avenue	27.5	00 min 16 sec	
Euclid Avenue	29.8	00 min 20 sec	
Regent Drive	25.1	00 min 46 sec	
Baseline Road	25.5	00 min 53 sec	
27th Way	32.8	00 min 34 sec	
Dartmouth Avenue	35.4	01 min 02 sec	
Table Mesa Drive	28.9	01 min 04 sec	
Hanover Avenue	38.9	00 min 26 sec	
Greenbriar Boulevard	40.8	00 min 50 sec	

City of Boulder

DRIVE TIME 2012

Broadway • 28th Street • Foothills Parkway



Prepared by:

Fox Higgins Transportation Group, LLC
and
Short Elliott Hendrickson, Inc.

July 2013

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Appendix I: Drive Time Comparison for All North-South Years

Appendix II: Drive Time 2012

1.0 Background

A drive time study measuring the time it takes to get across town in Boulder during peak traffic hours (7:30am, 12:00 noon and 5:00 pm) has been performed each year since 1986. The purpose of these annual studies is to determine how congestion on the major arteries in Boulder is changing over time. Historically, in even-numbered years, the north/south routes (Broadway, 28th Street, and recently Foothills Parkway) have been studied and in odd-numbered years, the east/west routes (Valmont and Arapahoe) have been studied (see Methodology section for exact routes). The frequency of travel time and delay studies in the City has been reduced in the past few years due to budgetary constraints. Thus, the previous east-west travel time evaluations were performed in 2008. Before 2004 these studies were performed by staff of the City of Boulder Audit and Evaluation Division. Since 2004, data has been collected by a consultant team consisting of the Fox Tuttle Transportation Group, LLC and Short Elliott Hendrickson, Inc. Foothills Parkway was added to the data collection in 2006 as a third north-south corridor.

This report focuses on the results from 2012 when the north-south routes of Broadway, 28th Street, and Foothills Parkway were studied. Appendix I contains comparison summaries of drive time information by street and direction for all years when data was collected. Appendix II contains the results in detail for data collected in 2012. Refer to older reports for detailed results of past study years.

In 2004, a significant change in study methodology was made: travel time runs were aborted any time there were conditions along the corridor that were considered atypical. This may have been due to construction, lane closures, traffic accidents, or severe weather. Since these runs, which are typically much longer and experience greater delays, were removed from the data set, the average trip times in subsequent years are generally shorter than previous years. For this reason, direct comparisons between new data and previous study years should be used with some caution. The change in data collection methodology was made to provide a more direct evaluation of the performance of the corridor signal system by only collecting data in typical conditions.

Note: Prior to 2004, the north end of the travel time and delay study areas terminated at Violet Avenue along Broadway and at Kalmia Avenue along 28th Street. Data collected in 2004 and since has extended both of these corridors: north to Lee Hill Road along Broadway and north to Jay Road along 28th Street. Where comparisons are made to pre-2004 data in this report, only the original study area segments were included in the calculations to provide a consistent basis for comparison.

2.0 Comparison of Drive Time by Street

The average trip times and the average time spent stopped (or “stopped time”) on Broadway, 28th Street, and Foothills Parkway over all of the years studied are displayed in **Figure 1**. On both Broadway and 28th, total travel times and stopped times have increased steadily between 1986 and 1998, with a sharp increase between 1998 and 2000. After 2000, total trip times decreased steadily to a 12-year low-point in 2004. Recent data (2006, 2008, and 2012) shows similar rates of increase in travel and stop times as pre-1998 data. There were no significant changes to travel or stopped times in 2012.

As discussed in previous reports, the Skunk Creek underpass project on Broadway and the Goose Creek underpass project on 28th Street may have contributed to the spike in 2000. The dip in 2004 was most likely due to a change in the study methodology which excluded travel time runs during atypical conditions (construction, lane closures, traffic accidents, severe weather). The reduction in travel times in 2004 may also have been partially attributable to corridor signal timing and roadway improvements, completion of the Broadway reconstruction project between University Avenue & Pine Street (both from decreases in construction-related delays and some diversion of traffic to other parallel corridors), and overall decrease in traffic volumes on these corridors than in previous years. More recently on 28th Street, the completion of improvements at the Iris intersection have likely contributed to the decreased in travel times along this corridor.

Figure 1. Comparison of Total Trip Time and Time Stopped 1986 to 2012

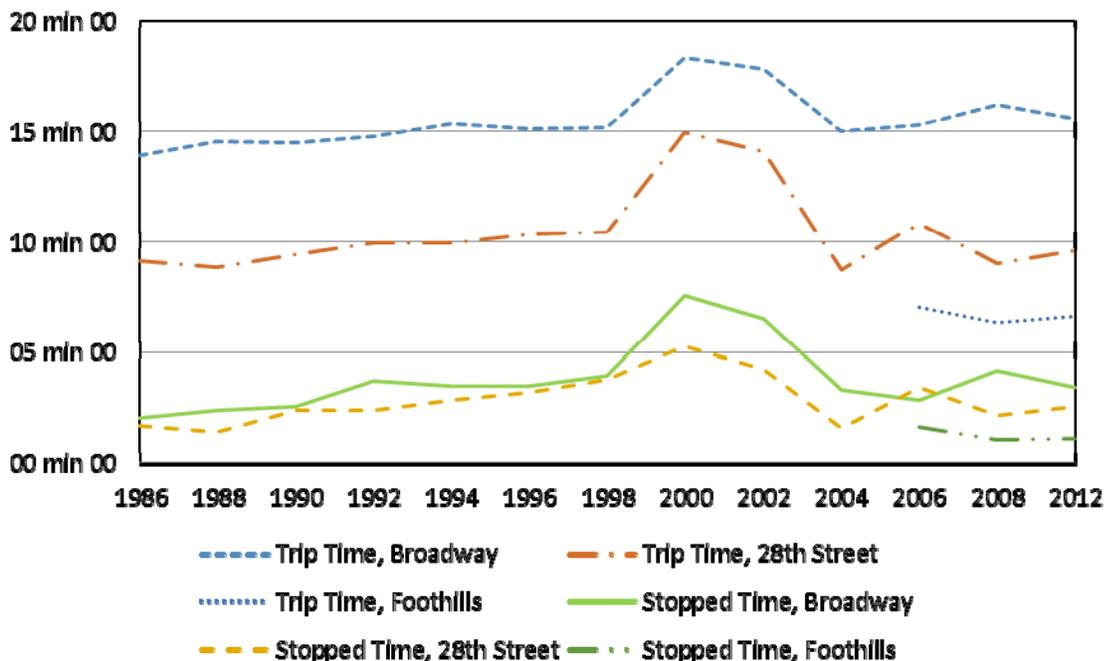
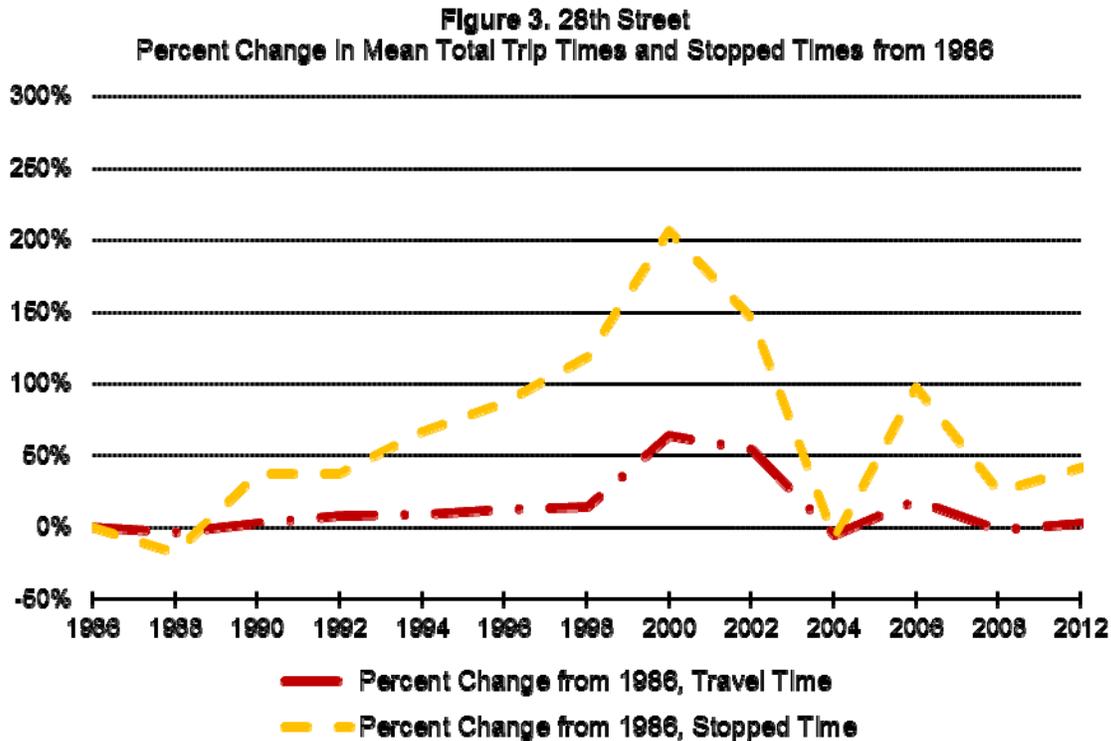
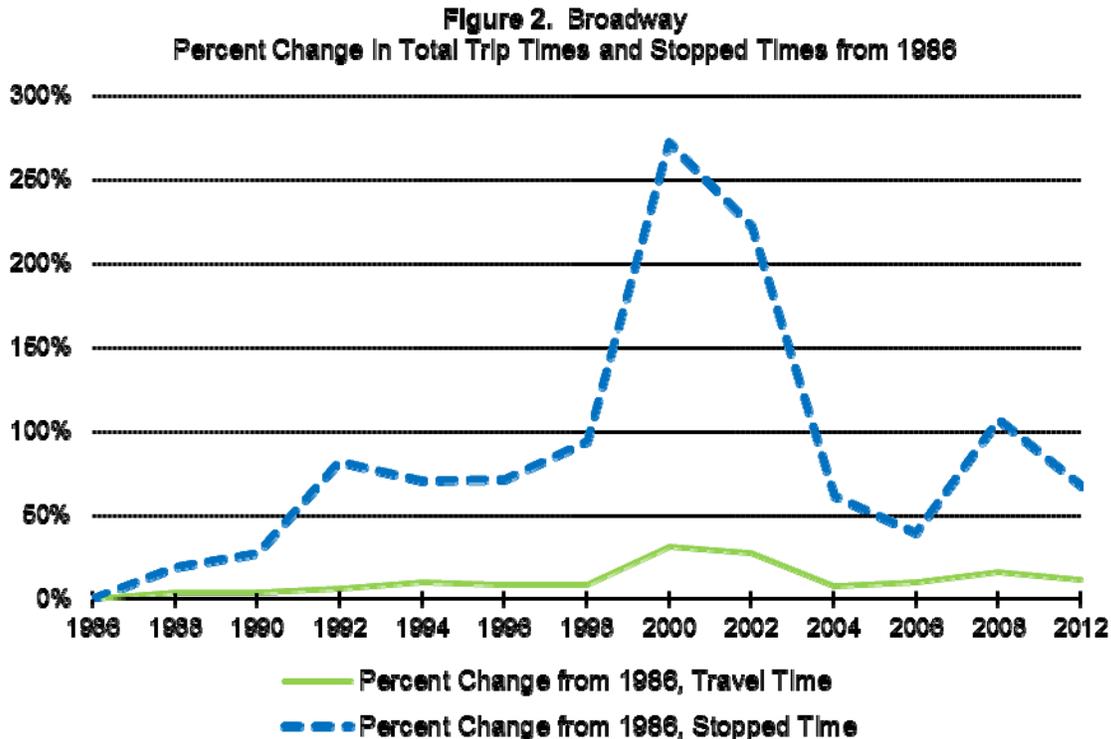


Table 1 shows the mean trip times, mean time spent stopped, and the mean percent of time spent stopped by year. Differences between each study year and the first year of data collection (1986 for Broadway and 28th Street, 2006 for Foothills) are also provided.

Table 1
Comparison of Broadway, 28th Street, and Foothills Parkway
Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from 1986	Time Stopped	Difference from 1986	Percent of Time Stopped	Difference from 1986
Broadway	1986	13 min 56 sec	n/a	02 min 02 sec	n/a	14%	n/a
	1988	14 min 33 sec	+ 00 min 37 sec	02 min 25 sec	+ 00 min 23 sec	16%	+ 2%
	1990	14 min 30 sec	+ 00 min 34 sec	02 min 35 sec	+ 00 min 33 sec	18%	+ 4%
	1992	14 min 47 sec	+ 00 min 51 sec	03 min 42 sec	+ 01 min 40 sec	24%	+ 10%
	1994	15 min 22 sec	+ 01 min 26 sec	03 min 28 sec	+ 01 min 26 sec	22%	+ 8%
	1996	15 min 06 sec	+ 01 min 10 sec	03 min 29 sec	+ 01 min 27 sec	23%	+ 9%
	1998	15 min 09 sec	+ 01 min 13 sec	03 min 57 sec	+ 01 min 55 sec	26%	+ 12%
	2000	18 min 20 sec	+ 04 min 24 sec	07 min 34 sec	+ 05 min 32 sec	38%	+ 24%
	2002	17 min 49 sec	+ 03 min 53 sec	06 min 33 sec	+ 04 min 31 sec	35%	+ 21%
	2004	15 min 01 sec	+ 01 min 05 sec	03 min 17 sec	+ 01 min 15 sec	21%	+ 7%
	2006	15 min 19 sec	+ 01 min 23 sec	02 min 50 sec	+ 00 min 48 sec	18%	+ 4%
	2008	16 min 14 sec	+ 02 min 18 sec	04 min 12 sec	+ 02 min 10 sec	25%	+ 11%
	2012	15 min 36 sec	+ 01 min 40 sec	03 min 24 sec	+ 01 min 22 sec	21%	+ 7%
28th Street	1986	09 min 07 sec	n/a	01 min 43 sec	n/a	18%	n/a
	1988	08 min 49 sec	- 00 min 18 sec	01 min 25 sec	- 00 min 18 sec	16%	- 2%
	1990	09 min 24 sec	+ 00 min 17 sec	02 min 22 sec	+ 00 min 39 sec	24%	+ 6%
	1992	09 min 55 sec	+ 00 min 48 sec	02 min 22 sec	+ 00 min 39 sec	23%	+ 5%
	1994	09 min 57 sec	+ 00 min 50 sec	02 min 52 sec	+ 01 min 09 sec	26%	+ 8%
	1996	10 min 19 sec	+ 01 min 12 sec	03 min 13 sec	+ 01 min 30 sec	30%	+ 12%
	1998	10 min 27 sec	+ 01 min 20 sec	03 min 46 sec	+ 02 min 03 sec	32%	+ 14%
	2000	14 min 56 sec	+ 05 min 49 sec	05 min 16 sec	+ 03 min 33 sec	32%	+ 14%
	2002	14 min 05 sec	+ 04 min 58 sec	04 min 13 sec	+ 02 min 30 sec	28%	+ 10%
	2004	08 min 42 sec	- 00 min 25 sec	01 min 35 sec	- 00 min 08 sec	16%	- 2%
	2006	10 min 51 sec	+ 01 min 44 sec	03 min 24 sec	+ 01 min 41 sec	29%	+ 11%
	2008	09 min 00 sec	- 00 min 07 sec	02 min 09 sec	+ 00 min 26 sec	22%	+ 4%
	2012	09 min 34 sec	- 00 min 27 sec	02 min 34 sec	+ 00 min 51 sec	25%	+ 7%
Foothills Pkwy	**** No data prior to 2006 ****						
	2006	07 min 04 sec	n/a	01 min 38 sec	n/a	20%	n/a
	2008	06 min 21 sec	- 00 min 43 sec	01 min 04 sec	- 00 min 34 sec	16%	- 4%
	2012	06 min 38 sec	- 00 min 26 sec	01 min 07 sec	- 00 min 31 sec	15%	+ 5%

Figure 2 and Figure 3 show the percent change in mean total trip times and stopped times since 1986.



3.0 Comparison of Drive Times by Street and Direction

Mean trip time, time stopped, and percent of time stopped were examined for each street by direction. **Table 2** provides a summary of Mean Total Trip Time, Mean Total Stopped Time, and Mean % of Time Stopped for Broadway by direction. **Figure 4** and **Figure 5** (on the following page) provide an historic breakdown of mean travel times between nodes, to provide some sense of where the changes in travel time have occurred within the corridor over time. *Note: node data is only available for years in which the GPS data collection has been used (2004 to present).*

Table 2
Comparison of Broadway North and South
Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from 1986	Time Stopped	Difference from 1986	Percent of Time Stopped	Difference from 1986
Broadway North	1986	13 min 43 sec	n/a	01 min 46 sec	n/a	12%	n/a
	1988	15 min 24 sec	+ 01 min 41 sec	02 min 57 sec	+ 01 min 11 sec	18%	+ 6%
	1990	14 min 53 sec	+ 01 min 10 sec	02 min 50 sec	+ 01 min 04 sec	19%	+ 7%
	1992	15 min 20 sec	+ 01 min 37 sec	03 min 51 sec	+ 02 min 05 sec	23%	+ 11%
	1994	15 min 52 sec	+ 02 min 09 sec	03 min 46 sec	+ 02 min 00 sec	23%	+ 11%
	1996	15 min 39 sec	+ 01 min 56 sec	03 min 52 sec	+ 02 min 06 sec	24%	+ 12%
	1998	15 min 09 sec	+ 01 min 26 sec	04 min 02 sec	+ 02 min 16 sec	27%	+ 15%
	2000	18 min 29 sec	+ 04 min 46 sec	07 min 26 sec	+ 05 min 40 sec	37%	+ 25%
	2002	18 min 45 sec	+ 05 min 02 sec	07 min 02 sec	+ 05 min 16 sec	37%	+ 25%
	2004	15 min 51 sec	+ 02 min 08 sec	03 min 46 sec	+ 02 min 00 sec	23%	+ 11%
	2006	16 min 00 sec	+ 02 min 17 sec	03 min 06 sec	+ 01 min 20 sec	19%	+ 7%
	2008	17 min 08 sec	+ 03 min 25 sec	05 min 08 sec	+ 03 min 22 sec	28%	+ 16%
2012	16 min 20 sec	+ 02 min 37 sec	04 min 03 sec	+ 02 min 17 sec	24%	+ 12%	
Broadway South	1986	14 min 08 sec	n/a	02 min 19 sec	n/a	16%	n/a
	1988	13 min 42 sec	- 00 min 26 sec	01 min 54 sec	- 00 min 25 sec	14%	- 2%
	1990	14 min 08 sec	- 00 min 00 sec	02 min 20 sec	+ 00 min 01 sec	16%	- 0%
	1992	14 min 15 sec	+ 00 min 07 sec	03 min 33 sec	+ 01 min 14 sec	25%	+ 9%
	1994	14 min 52 sec	+ 00 min 44 sec	03 min 10 sec	+ 00 min 51 sec	21%	+ 5%
	1996	14 min 34 sec	+ 00 min 26 sec	03 min 05 sec	+ 00 min 46 sec	21%	+ 5%
	1998	15 min 10 sec	+ 01 min 02 sec	03 min 53 sec	+ 01 min 34 sec	25%	+ 9%
	2000	18 min 11 sec	+ 04 min 03 sec	07 min 43 sec	+ 05 min 24 sec	40%	+ 24%
	2002	16 min 59 sec	+ 02 min 51 sec	06 min 04 sec	+ 03 min 45 sec	34%	+ 18%
	2004	14 min 05 sec	- 00 min 03 sec	02 min 43 sec	+ 00 min 24 sec	19%	+ 3%
	2006	14 min 33 sec	+ 00 min 25 sec	02 min 32 sec	+ 00 min 13 sec	17%	+ 1%
	2008	15 min 19 sec	+ 01 min 11 sec	03 min 16 sec	+ 00 min 57 sec	21%	+ 5%
2012	14 min 51 sec	+ 00 min 43 sec	02 min 46 sec	+ 00 min 27 sec	18%	+ 2%	

Figure 4. Historic Travel Time from Previous Node, Broadway Northbound
(2012 data in Green, Previous Years in Grey)

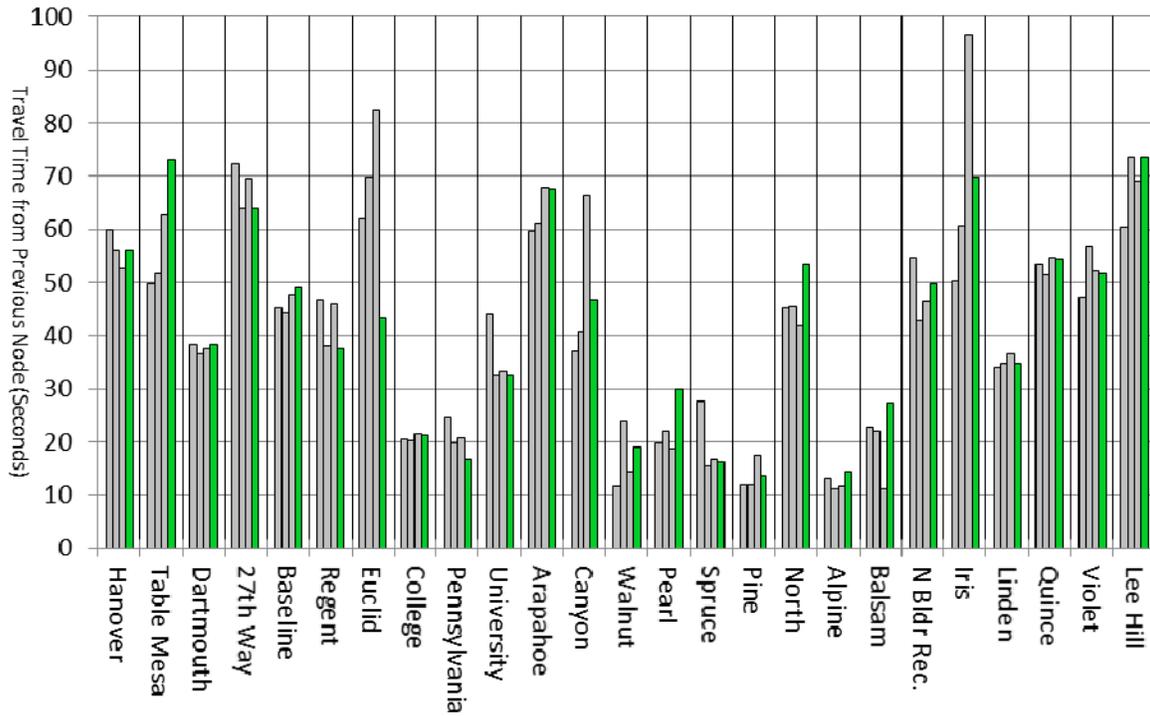


Figure 5. Historic Travel Time from Previous Node, Broadway Southbound
(2012 data in Green, Previous Years in Grey)

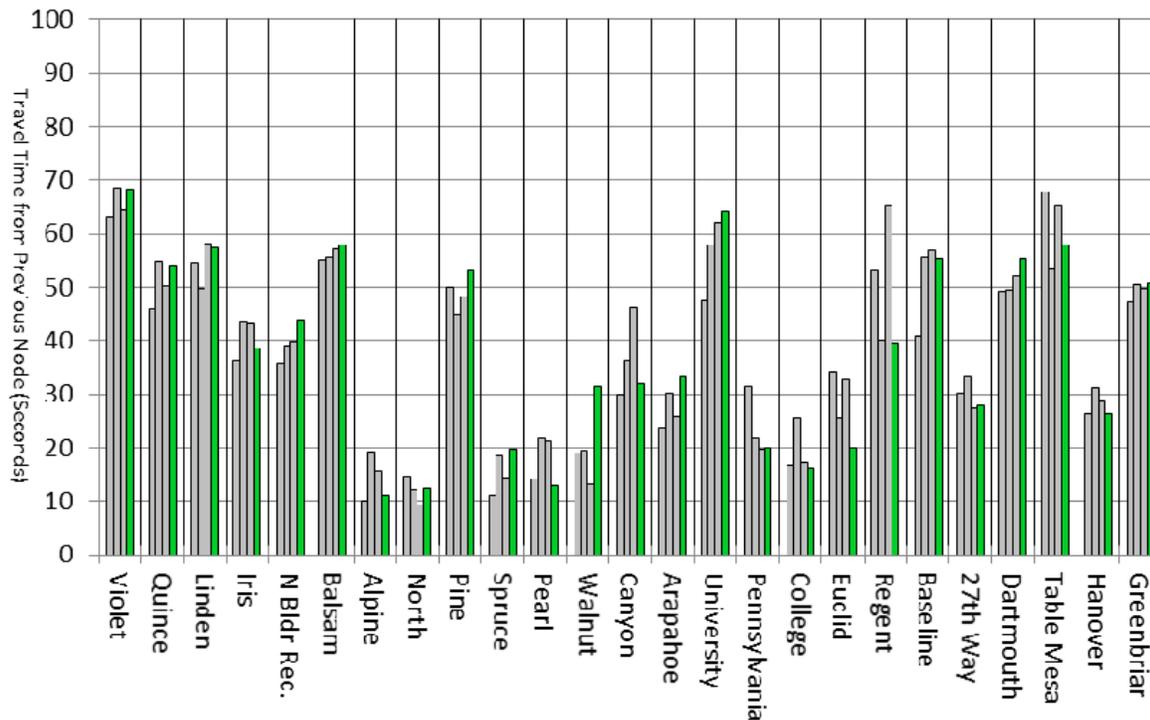


Table 3 provides a summary of Mean Total Trip Time, Mean Total Stopped Time, and Mean % of Time Stopped for 28th Street by direction. **Figure 6** and **Figure 7** (on the following page) provide an historic breakdown of mean travel times between nodes, to provide some sense of where the changes in travel time have occurred within the corridor over time. *Note: node data is only available for years in which the GPS data collection has been used (2004 to present).*

Table 3
Comparison of 28th Street North and South
Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from 1986	Time Stopped	Difference from 1986	Percent of Time Stopped	Difference from 1986
28th Street North	1986	08 min 51 sec	n/a	01 min 27 sec	n/a	16%	n/a
	1988	09 min 04 sec	+ 00 min 13 sec	01 min 31 sec	+ 00 min 04 sec	16%	- 0%
	1990	08 min 59 sec	+ 00 min 08 sec	01 min 58 sec	+ 00 min 31 sec	21%	+ 5%
	1992	09 min 42 sec	+ 00 min 51 sec	01 min 56 sec	+ 00 min 29 sec	20%	+ 4%
	1994	09 min 22 sec	+ 00 min 31 sec	02 min 32 sec	+ 01 min 05 sec	22%	+ 6%
	1996	10 min 00 sec	+ 01 min 09 sec	02 min 59 sec	+ 01 min 32 sec	28%	+ 12%
	1998	11 min 03 sec	+ 02 min 12 sec	04 min 24 sec	+ 02 min 57 sec	34%	+ 18%
	2000	15 min 10 sec	+ 06 min 19 sec	05 min 37 sec	+ 04 min 10 sec	34%	+ 18%
	2002	13 min 46 sec	+ 04 min 55 sec	03 min 58 sec	+ 02 min 31 sec	27%	+ 11%
	2004	08 min 21 sec	- 00 min 30 sec	01 min 21 sec	- 00 min 06 sec	15%	- 1%
	2006	10 min 36 sec	+ 01 min 45 sec	03 min 35 sec	+ 02 min 08 sec	31%	+ 15%
	2008	09 min 16 sec	+ 00 min 25 sec	02 min 17 sec	+ 00 min 50 sec	23%	+ 7%
	2012	09 min 53 sec	+ 01 min 02 sec	02 min 45 sec	+ 01 min 18 sec	26%	+ 10%
28th Street South	1986	09 min 24 sec	n/a	01 min 58 sec	n/a	20%	n/a
	1988	08 min 33 sec	- 00 min 51 sec	01 min 19 sec	- 00 min 39 sec	15%	- 5%
	1990	09 min 50 sec	+ 00 min 26 sec	02 min 46 sec	+ 00 min 48 sec	26%	+ 6%
	1992	10 min 08 sec	+ 00 min 44 sec	02 min 48 sec	+ 00 min 50 sec	27%	+ 7%
	1994	10 min 33 sec	+ 01 min 09 sec	03 min 13 sec	+ 01 min 15 sec	29%	+ 9%
	1996	10 min 40 sec	+ 01 min 16 sec	03 min 26 sec	+ 01 min 28 sec	31%	+ 11%
	1998	09 min 51 sec	+ 00 min 27 sec	03 min 07 sec	+ 01 min 09 sec	30%	+ 10%
	2000	14 min 43 sec	+ 05 min 19 sec	04 min 54 sec	+ 02 min 56 sec	31%	+ 11%
	2002	14 min 26 sec	+ 05 min 02 sec	04 min 28 sec	+ 02 min 30 sec	28%	+ 8%
	2004	09 min 00 sec	- 00 min 24 sec	01 min 48 sec	- 00 min 10 sec	17%	- 3%
	2006	10 min 11 sec	+ 00 min 47 sec	03 min 06 sec	+ 01 min 08 sec	29%	+ 9%
	2008	08 min 43 sec	- 00 min 41 sec	02 min 00 sec	+ 00 min 02 sec	22%	+ 2%
	2012	09 min 15 sec	- 00 min 09 sec	02 min 23 sec	+ 00 min 25 sec	24%	+ 4%

Figure 6. Historic Travel Time from Previous Node, 28th Street Northbound
(2012 data in Green, Previous Years in Grey)

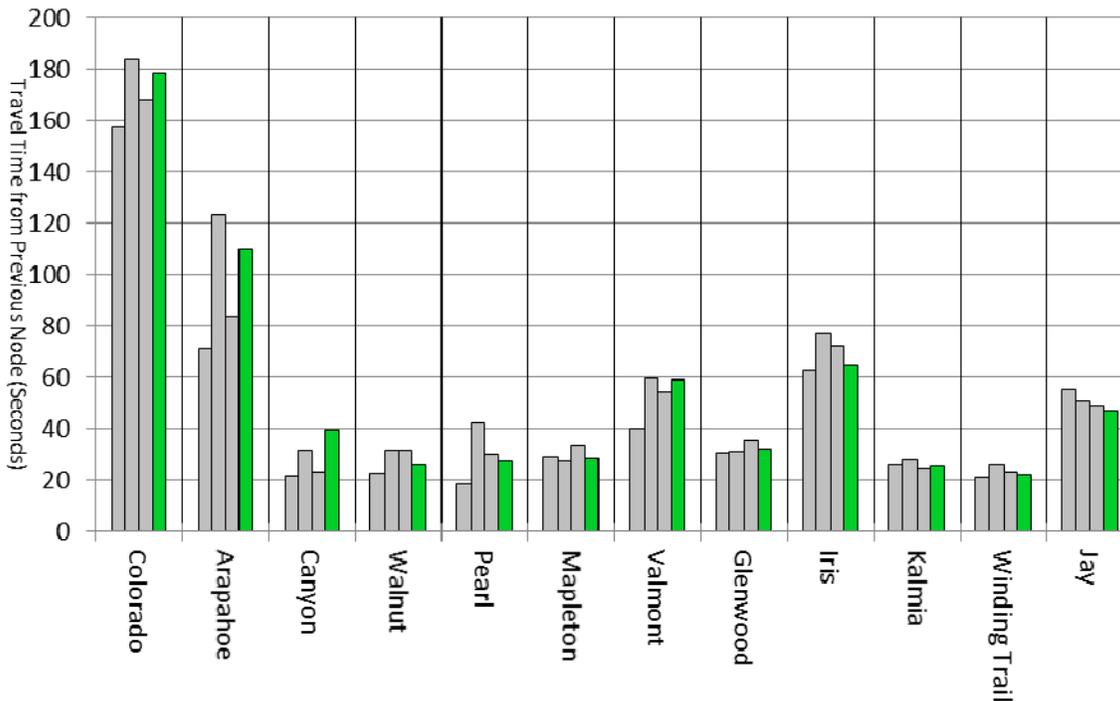
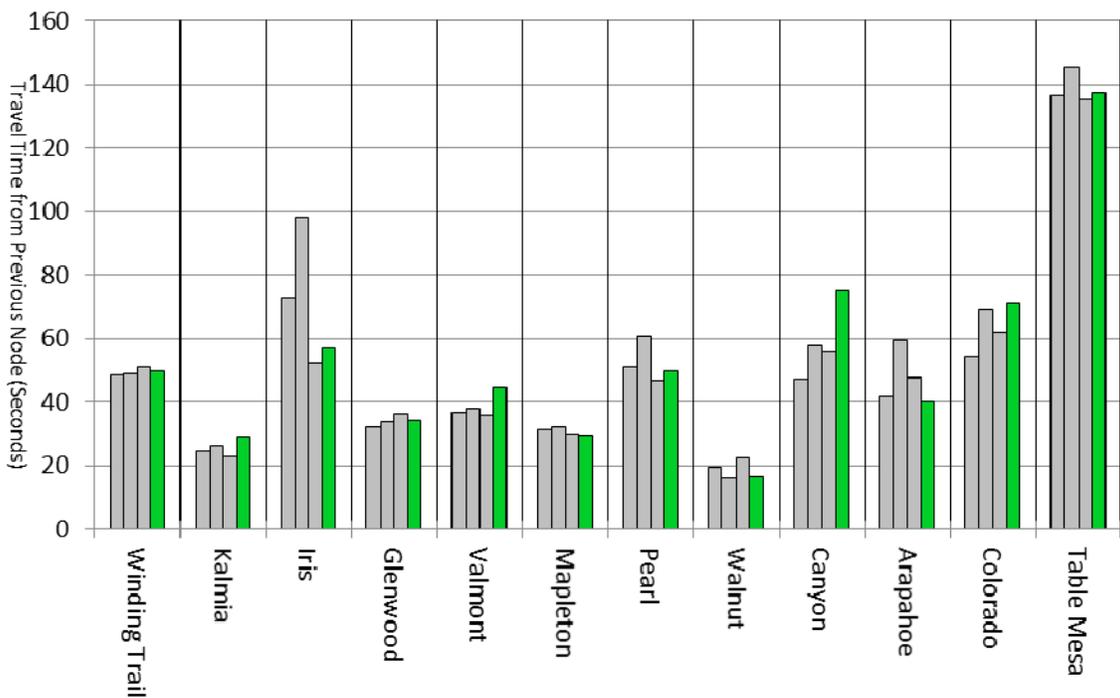


Figure 7 . Historic Travel Time from Previous Node, 28th Street Southbound
(2012 data in Green, Previous Years in Grey)



The 2012 data for the Foothills Parkway corridor is summarized in **Table 4**, below, with comparisons to 2006 (the first year that the Foothills Parkway corridor was studied). **Figure 8** and **Figure 9** provide an historic breakdown of mean travel times between nodes, to provide some sense of where the changes in travel time have occurred within the corridor data years.

Table 4
Comparison of Foothills Pkwy North and South
Mean Total Trip Time, Mean Total Time Stopped, and Mean Percent of Time Stopped

Street	Year	Mean Total Trip Time		Mean Total Time Stopped		Mean % of Time Stopped	
		Trip Time	Difference from 1986	Time Stopped	Difference from 1986	Percent of Time Stopped	Difference from 1986
Foothills North	**** No data prior to 2006 ****						
	2006	06 min 24 sec	n/a	01 min 10 sec	n/a	17%	n/a
	2008	06 min 15 sec	- 00 min 09 sec	01 min 10 sec	- 00 min 00 sec	17%	- 0%
	2012	06 min 31 sec	+ 00 min 07 sec	01 min 13 sec	+ 00 min 03 sec	17%	- 0%
Foothills South	**** No data prior to 2006 ****						
	2006	07 min 45 sec	n/a	02 min 07 sec	n/a	23%	n/a
	2008	06 min 28 sec	- 01 min 17 sec	00 min 59 sec	- 01 min 08 sec	14%	- 9%
	2012	06 min 45 sec	- 01 min 00 sec	01 min 01 sec	- 01 min 06 sec	14%	- 9%

Figure 8. Historic Travel Time from Previous Node, Foothills Northbound
(2012 data in Green, Previous Years in Grey)

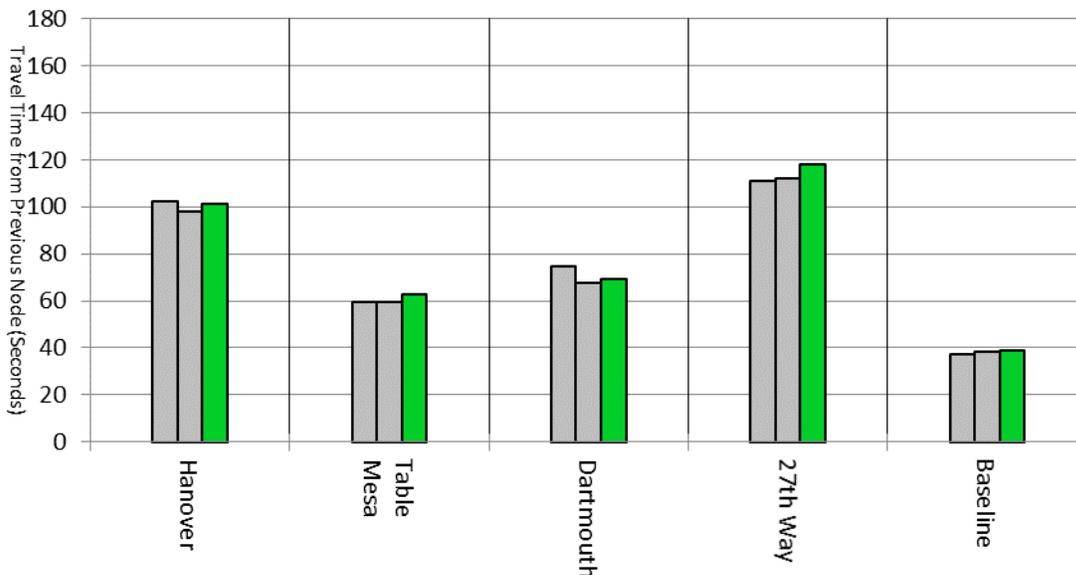
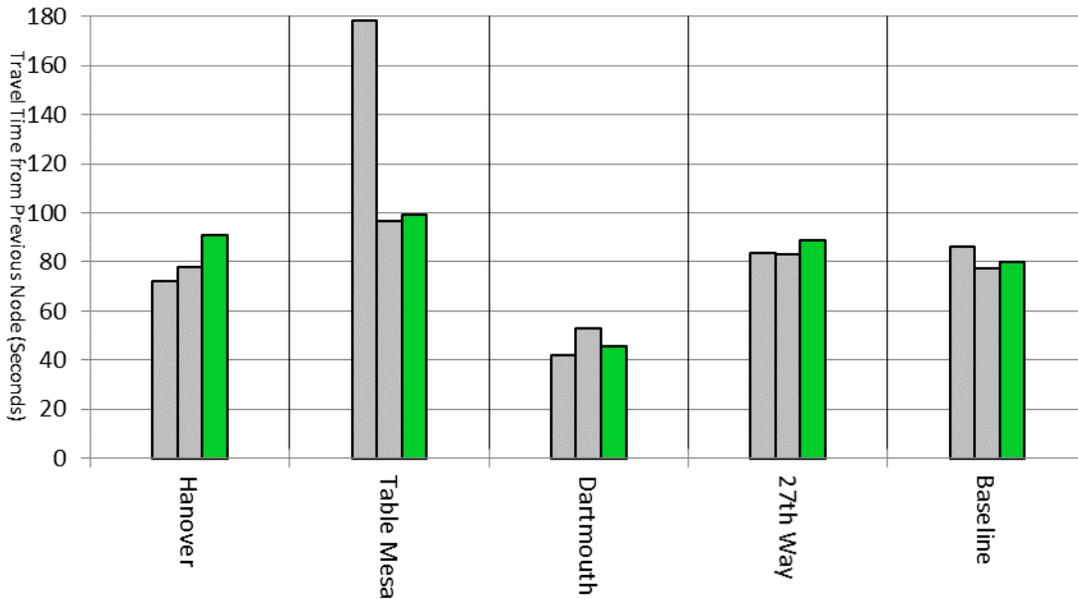


Figure 9. Historic Travel Time from Previous Node, Foothills Southbound
(2012 data in Green, Previous Years in Grey)



4.0 “Worst” Lights

Each year, the data collected in the Drive Time study are used to determine the ten most frequently stopped-at traffic signals in a given year. These results are categorized into a “ten worst” lights list (worst lights by chance of hitting the red traffic light). Appendix II displays the complete list along with lists of the “ten best” lights.

As shown in **Table 5** below, a red light was experienced during all northbound runs at the Iris & Broadway intersection. This was the “worst” light with respect to chances of hitting a red light.

Table 5 - “Worst” Lights 2012

Worst Lights by Chance of Hitting the Traffic Light	
Intersection, Direction	Mean Chance in 2012
Foothills @ Valmont, Southbound	87%
28th @ Colorado, Northbound	80%
28th @ Canyon, Southbound	80%
Broadway @ Arapahoe, Northbound	80%
Broadway @ University, Southbound	80%
Broadway @ Table Mesa, Northbound	73%
28th @ Arapahoe, Northbound	67%
28th @ Iris/Diagonal, Northbound	67%
28th @ Iris/Diagonal, Southbound	67%
Broadway @ Iris, Northbound	67%

5.0 Methodology

A similar methodology is used every year for the drive time studies, although the routes alternate from north/south to east/west. In 2004, a new data collection methodology was adopted which utilizes a hand-held GPS device, a laptop computer, and TS-PP Draft software to record the travel time and delay data. This replaced the manual stop-watch method previously used by City staff from 1986 to 2003. Both the old and new methods involve one person who operates the vehicle and performs the data collection simultaneously. In contrast to the old method, however, the new GPS/laptop method does not require any effort on the part of the driver once the study has begun.

GPS coordinates for each traffic signal were mapped into the TS-PP Draft software prior to beginning travel time runs for the new year. Since there is an inherent margin of error in the GPS locations, several mapping runs were performed along each of the corridors to provide the most accurate locations possible. Even so, there is generally a margin of error of 15 feet in all calculations. However, over many runs, the significance of these errors is diminished.

In 2012, 30 total runs were performed on each of the three study corridors per year, with one corridor being studied in both directions during a signal outing (15 runs per direction per corridor per year). Trips are made at 7:30 am, 12:00 noon, or 5:00 pm to correspond with peak traffic periods. During an outing, a trip is made in one direction and then back in the opposite direction on the same corridor. Prior to 2006, 60 runs were performed on each corridor per year. Standard deviation calculations indicate that the reduced number of runs has not affected annual result tabulations.

Previous to 2004, it is believed that travel time runs were collected by the City of Boulder on each corridor regardless of roadway construction, traffic accidents, severe weather, and all other factors. Travel time runs were not aborted under any of these conditions. Since 2004, this practice has been changed. Now, travel time runs are aborted if there are any uncommon conditions that would cause delays typically not experienced along the corridor. This change was made to provide a more useful evaluation of the corridor signal system under the conditions it is designed to operate. Since lane closures, construction, accidents, etc. are special circumstances which significantly affect traffic flow, speeds, and delays, incorporating these conditions into the data set disables the ability to effectively evaluate corridor timing plans.

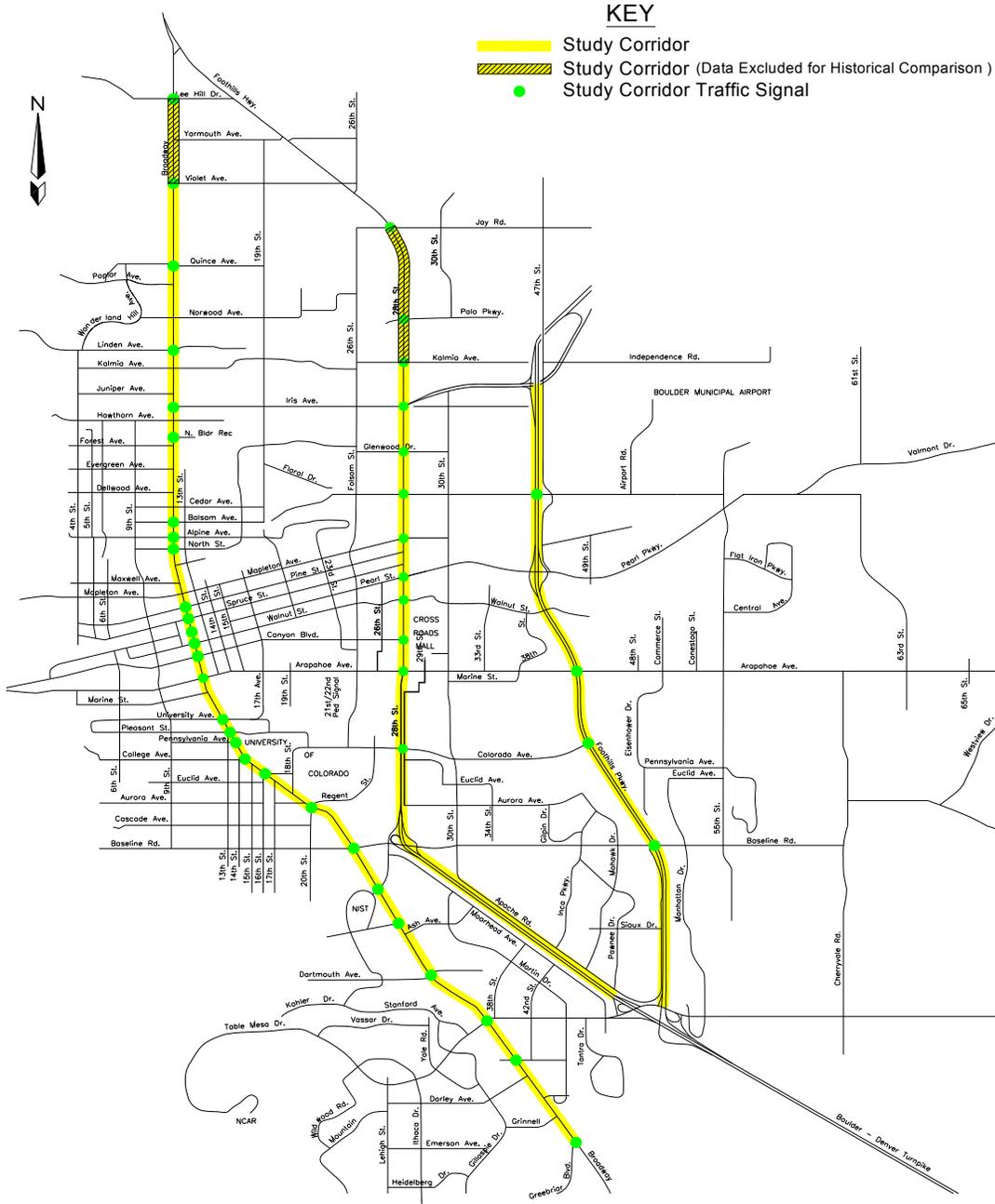
Routes

The endpoints of the timed portion Broadway are Greenbriar Blvd. on the north and Lee Hill Road on the north. Prior to 2004, the north end of the timing runs terminated at Violet Avenue. For this reason, the data from Violet Avenue to Lee Hill Road is excluded from historical comparisons.

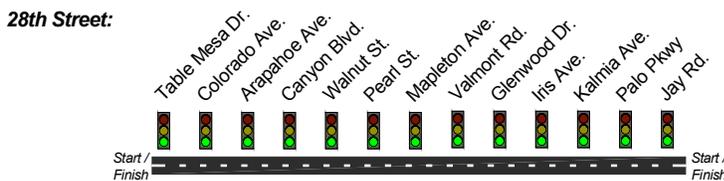
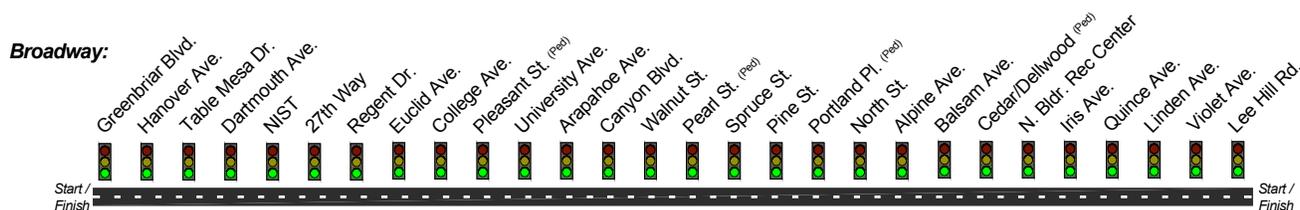
The timed segment of 28th Street extends from Table Mesa on the south to Jay Road on the north. The data from Kalmia Avenue to Jay Road is not included in historical comparisons since this section was only recently added in 2004.

The Foothills Parkway corridor, added in 2006, extends from South Boulder Road on the south to Iris / Diagonal on the north. **Figure 10** provides a map showing the three north-south corridor study limits and signalized intersections.

Figure 10. North-South Corridor Study Limits



Drive Time Map for North-South Routes



Weighting

In 1992, 1993, and 2004 not all the scheduled drive time trips for the year were completed. In 1992 there was a major construction project on Broadway which if included in the study would unfairly bias the results for 1992. In 1993, misunderstandings with research assistants resulted in missed trips. In 2004, budget constraints resulted in no data collected for the first four months of the year. Thus, to compensate for the missing data, the results were weighted statistically.

The data were weighted by street driven, direction of trip, and start time so that there were an equal number of trips in each direction on each street for each time of day across all the years. This counterbalances the effect these variables may have on the average trip time.

Appendix I: Drive Time Comparison for All North-South Years

Table I-1	Comparison of Drive Time by Street across All Years
Table I-2	Comparison of Drive Time by Street and Direction across All Years
Table I-3	Mean Time Stopped at Four Boulder Intersections
Table I-4	Probability of Being Stopped at Four Boulder Intersections

**Table I-1
Comparison of Drive Time by Street Across all Years**

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible at Signals (NB/SB)	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips
Broadway	1986	6.0 miles	13 min 56 sec	26.2	22	6.4	02 min 02 sec	14%	54
	1988	6.0 miles	14 min 33 sec	25.3	22	6.1	02 min 25 sec	16%	41
	1990	6.0 miles	14 min 30 sec	25.1	22	5.9	02 min 35 sec	18%	57
	1992	6.0 miles	14 min 47 sec	25.0	22 / 21	6.5	03 min 42 sec	24%	47
	1994	6.0 miles	15 min 22 sec	23.7	21 / 22 / 23	6.7	03 min 28 sec	22%	57
	1996	6.0 miles	15 min 06 sec	24.2	24 / 23	6.9	03 min 29 sec	23%	59
	1998	6.0 miles	15 min 09 sec	24.0	22 / 23	7.1	03 min 57 sec	26%	61
	2000	6.0 miles	18 min 20 sec	21.4	23	10.2	07 min 34 sec	38%	59
	2002	6.0 miles	17 min 49 sec	28.1	24	8.6	06 min 33 sec	35%	60
	2004	6.2 miles	15 min 01 sec	25.1	24 / 25	7.6	03 min 17 sec	21%	28
	2006	6.2 miles	15 min 19 sec	24.9	24 / 25	7.1	02 min 50 sec	18%	28
	2008	6.2 miles	16 min 14 sec	26.2	24 / 25	7.5	04 min 12 sec	25%	30
2012	6.2 miles	15 min 36 sec	26.1	26*	7.5	03 min 24 sec	21%	30	
28th Street	1986	4.0 miles	09 min 07 sec	26.9	8	3.8	01 min 43 sec	18%	56
	1988	4.0 miles	08 min 49 sec	27.7	8	3.0	01 min 25 sec	16%	40
	1990	4.0 miles	09 min 24 sec	26.2	8	3.4	02 min 22 sec	24%	57
	1992	4.0 miles	09 min 55 sec	25.0	8	3.5	02 min 22 sec	23%	47
	1994	4.0 miles	09 min 57 sec	24.7	8	3.7	02 min 52 sec	26%	57
	1996	4.0 miles	10 min 19 sec	24.0	8	4.2	03 min 13 sec	30%	59
	1998	4.0 miles	10 min 27 sec	24.0	8	4.2	03 min 46 sec	32%	61
	2000	4.0 miles	14 min 56 sec	17.6	8 / 9	5.1	05 min 16 sec	32%	59
	2002	4.0 miles	14 min 05 sec	23.9	9	4.0	04 min 13 sec	28%	60
	2004	4.4 miles	08 min 42 sec	28.5	9	2.8	01 min 35 sec	17%	19
	2006	4.4 miles	10 min 25 sec	26.8	9	4.9	03 min 28 sec	28%	36
	2008	4.4 miles	09 min 00 sec	29.9	9	3.7	02 min 09 sec	22%	30
2012	4.4 miles	09 min 34 sec	28.8	9	4.6	02 min 34 sec	25%	30	
Foothills Pkwy	**** No data prior to 2006 ****								
	2006	3.5 miles	07 min 29 sec	35.1	5	2.4	01 min 38 sec	20%	30
	2008	3.5 miles	06 min 21 sec	36.2	5	2.0	01 min 04 sec	16%	30
	2012	3.5 miles	06 min 28 sec	35.4	5	2.2	01 min 07 sec	15%	30

* Additional signals (potential stops) at 18th (NB and SB), 17th (NB & SB), and Euclid (NB only) were added in 2012 with the completion of the Broadway (Euclid to 18th) transportation improvements project.

Table I-2a
Comparison of Drive Time by Street and Direction Across all Years

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible at Signals	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips
Broadway North	1986	6.0 miles	13 min 43 sec	26.6	22	5.5	01 min 46 sec	12%	27
	1988	6.0 miles	15 min 24 sec	24.0	2	6.6	02 min 57 sec	18%	19
	1990	6.0 miles	14 min 53 sec	24.5	22	6.0	02 min 50 sec	19%	30
	1992	6.0 miles	15 min 20 sec	24.1	22 / 21	6.2	03 min 51 sec	23%	28
	1994	6.0 miles	15 min 52 sec	23.0	21 / 22	7.1	03 min 46 sec	23%	30
	1996	6.0 miles	15 min 39 sec	23.4	23	7.1	03 min 52 sec	24%	29
	1998	6.0 miles	15 min 09 sec	24.0	23	7.0	04 min 02 sec	27%	33
	2000	6.0 miles	18 min 29 sec	20.8	24	10.0	07 min 26 sec	37%	31
	2002	6.0 miles	18 min 45 sec	26.8	24	9.2	07 min 02 sec	37%	30
	2004	6.2 miles	15 min 51 sec	24.2	24	8.8	03 min 46 sec	23%	15
	2006	6.2 miles	16 min 00 sec	24.8	24	8.2	03 min 06 sec	18%	15
	2008	6.2 miles	17 min 08 sec	25.7	24	8.3	05 min 08 sec	28%	15
2012	6.2 miles	16 min 20 sec	25.4	26	8.1	04 min 03 sec	24%	15	
Broadway South	1986	6.0 miles	14 min 08 sec	25.8	22	7.3	02 min 19 sec	16%	27
	1988	6.0 miles	13 min 42 sec	26.5	22	5.6	01 min 54 sec	14%	22
	1990	6.0 miles	14 min 08 sec	25.7	22	5.7	02 min 20 sec	16%	27
	1992	6.0 miles	14 min 15 sec	25.9	22	6.8	03 min 33 sec	25%	19
	1994	6.0 miles	14 min 52 sec	24.5	22 / 23	6.3	03 min 10 sec	21%	27
	1996	6.0 miles	14 min 34 sec	24.9	24	6.7	03 min 05 sec	21%	30
	1998	6.0 miles	15 min 10 sec	24.1	24	7.3	03 min 53 sec	25%	28
	2000	6.0 miles	18 min 11 sec	22.0	24	10.4	07 min 43 sec	40%	28
	2002	6.0 miles	16 min 59 sec	29.3	24	7.6	06 min 04 sec	34%	30
	2004	6.2 miles	14 min 05 sec	26.1	25	6.2	02 min 43 sec	19%	13
	2006	6.2 miles	14 min 33 sec	25.0	25	5.8	02 min 32 sec	17%	13
	2008	6.2 miles	15 min 19 sec	26.7	25	6.5	03 min 16 sec	21%	15
2012	6.2 miles	14 min 51 sec	26.7	26	7.0	02 min 46 sec	18%	15	

Table I-2b
Comparison of Drive Time by Street and Direction Across all Years

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible at Signals	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips
28th Street North	1986	4.0 miles	08 min 51 sec	27.5	8	3.7	01 min 27 sec	16%	28
	1988	4.0 miles	09 min 04 sec	27.0	8	3.3	01 min 31 sec	16%	23
	1990	4.0 miles	08 min 59 sec	27.1	8	2.9	01 min 58 sec	21%	27
	1992	4.0 miles	09 min 42 sec	25.6	8	3.3	01 min 56 sec	20%	20
	1994	4.0 miles	09 min 22 sec	26.1	8	3.1	02 min 32 sec	22%	26
	1996	4.0 miles	10 min 00 sec	25.0	8	4.1	02 min 59 sec	28%	31
	1998	4.0 miles	11 min 03 sec	23.8	8	4.2	04 min 24 sec	34%	26
	2000	4.0 miles	15 min 10 sec	17.2	8 / 9	5.3	05 min 16 sec	34%	27
	2002	4.0 miles	13 min 46 sec	26.8	9	3.7	03 min 58 sec	27%	30
	2004	4.4 miles	08 min 21 sec	32.4	9	2.3	01 min 21 sec	15%	9
	2006	4.4 miles	10 min 36 sec	27.2	9	5.1	03 min 35 sec	31%	20
	2008	4.4 miles	09 min 16 sec	29.8	9	4.1	02 min 17 sec	23%	15
2012	4.4 miles	09 min 53 sec	29.2	9	4.7	02 min 45 sec	26%	15	
28th Street South	1986	4.0 miles	09 min 24 sec	26.2	8	3.8	01 min 58 sec	20%	28
	1988	4.0 miles	08 min 33 sec	28.3	8	2.6	01 min 19 sec	15%	17
	1990	4.0 miles	09 min 50 sec	25.4	8	3.8	02 min 46 sec	26%	30
	1992	4.0 miles	10 min 08 sec	24.5	8	3.7	02 min 48 sec	27%	27
	1994	4.0 miles	10 min 33 sec	23.4	8	4.4	03 min 13 sec	29%	31
	1996	4.0 miles	10 min 40 sec	23.1	8	4.4	03 min 26 sec	31%	28
	1998	4.0 miles	09 min 51 sec	25.0	8	4.1	03 min 07 sec	30%	35
	2000	4.0 miles	14 min 43 sec	18.1	8 / 9	4.9	05 min 14 sec	31%	32
	2002	4.0 miles	14 min 26 sec	28.2	9	4.4	04 min 28 sec	28%	30
	2004	4.4 miles	09 min 00 sec	25.1	9	3.2	01 min 48 sec	17%	11
	2006	4.4 miles	10 min 11 sec	26.2	9	4.7	03 min 06 sec	29%	16
	2008	4.4 miles	08 min 43 sec	30.0	9	3.3	03 min 06 sec	29%	15
2012	4.4 miles	09 min 15 sec	28.5	9	4.5	02 min 23 sec	24%	15	

Table I-2c
Comparison of Drive Time by Street and Direction Across all Years

Street	Year	Distance	Mean Total Trip Time	Mean Speed (mph)	Total Stops Possible at Signals	Mean Number of Stops	Mean Total Time Stopped	Mean Percent of Time Stopped	Number of Trips	
Foothills North	**** No data prior to 2006 ****									
	2006	3.5 miles	06 min 24 sec	37.1	5	1.9	01 min 10 sec	17%	15	
	2008	3.5 miles	06 min 15 sec	37.5	5	1.8	01 min 10 sec	17%	15	
	2012	3.5 miles	06 min 31 sec	36.3	5	1.9	01 min 13 sec	17%	15	
Foothills South	**** No data prior to 2006 ****									
	2006	3.5 miles	07 min 45 sec	33.1	5	2.9	02 min 07 sec	23%	15	
	2008	3.5 miles	06 min 28 sec	35.0	5	2.3	00 min 59 sec	15%	15	
	2012	3.5 miles	06 min 45 sec	34.5	5	2.4	01 min 01 sec	14%	15	

**Table I-3
Mean Time Stopped at Four Boulder Intersections**

Intersection	Direction	Mean Time Spent Stopped at Intersection (seconds)																									
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010	2012	Mean
Broadway and Arapahoe	East		45		41		45		34		41		40		75		37		35		54		26		47		43
	West		44		38		46		46		36		36		61		37		34		35		39		36		41
	North	7		27		35		56		22		32		47		54		74		38		29		52		38	39
	South	31		20		21		18		34		43		42		55		69		41		45		35		49	39
Broadway and Balsam	East		28		23		31		25		29		30		31		33		32		39		42		37		32
	West		30		30		32		30		29		36		34		30		31		41		36		36		33
	North	12		22		28		26		27		28		29		31		51		33		19		0		28	26
	South	13		11		31		26		28		22		28		29		64		23		17		29		15	26
28th Street and Arapahoe	East		38		54		43		51		39		52		66		46		43		58		62		58		51
	West		61		64		62		66		48		48		64		49		47		40		49		53		54
	North	27		27		37		38		50		38		52		51		65		50		84		70		77	51
	South	38		36		65		71		56		58		61		61		59		29		50		38		31	50
28th Street and Valmont	East		39		50		40		30		41		34		59		39		37		48		79		38		45
	West		41		54		39		64		42		47		56		41		40		55		74		60		51
	North	20		21		37		47		43		43		72		71		56		38		47		33		58	45
	South	26		26		37		39		34		36		47		47		53		37		44		39		40	39

**Table I-4
Probability of Being Stopped at Four Boulder Intersections**

Intersection	Direction	Chance of Stopping at the Intersection (percent)																									
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010	2012	Mean
Broadway and Arapahoe	East		90%		81%		82%		87%		82%		97%		62%		45%		43%		76%		50%		53%		71%
	West		77%		86%		77%		56%		70%		88%		93%		42%		41%		67%		93%		73%		72%
	North	15%		42%		13%		54%		27%		59%		61%		66%		77%		80%		80%		67%		80%	55%
	South	26%		36%		37%		47%		33%		60%		61%		88%		76%		15%		23%		20%		27%	42%
Broadway and Balsam	East		77%		76%		65%		38%		76%		79%		68%		28%		27%		85%		63%		80%		64%
	West		81%		93%		79%		71%		83%		75%		80%		28%		26%		88%		93%		67%		72%
	North	26%		26%		33%		36%		33%		31%		30%		36%		27%		33%		40%		0%		53%	31%
	South	41%		9%		41%		42%		56%		50%		50%		28%		23%		62%		38%		40%		60%	42%
28th Street and Arapahoe	East		33%		52%		68%		73%		71%		68%		69%		43%		41%		72%		88%		73%		63%
	West		18%		48%		58%		78%		64%		48%		38%		43%		40%		50%		53%		53%		49%
	North	75%		61%		81%		75%		65%		71%		77%		86%		70%		33%		80%		40%		67%	68%
	South	93%		82%		67%		67%		77%		75%		77%		67%		56%		53%		63%		47%		47%	67%
28th Street and Valmont	East		68%		81%		84%		100%		88%		83%		71%		25%		24%		54%		50%		47%		65%
	West		90%		81%		82%		64%		72%		75%		57%		32%		31%		65%		53%		60%		64%
	North	61%		22%		44%		40%		54%		58%		65%		81%		86%		40%		55%		60%		47%	55%
	South	89%		71%		67%		63%		74%		50%		54%		86%		83%		13%		19%		13%		33%	55%

Appendix II: Drive Time 2012

Table II.1	Time Traveled on North-South Corridors, 2012
Table II.2	Stops on North-South Corridors, 2012
Table II.3	Time Stopped on North-South Corridors, 2012
Table II.4	Drive Time by Time of Day, 2012
Table II.5	Ten Worst Intersections by Chances of Being Stopped, 2012
Table II.6	Ten Worst Intersections by Length of Stop, 2012
Table II.7	Ten Best Intersections by Chances of Being Stopped, 2012
Table II.8	Ten Best Intersections by Length of Stop, 2012
Table II.9	Drive Time and Speed between Intersections, 2012 (Broadway North)
Table II.10	Drive Time and Speed between Intersections, 2012 (Broadway South)
Table II.11	Drive Time and Speed between Intersections, 2012 (28 th Street North)
Table II.12	Drive Time and Speed between Intersections, 2012 (28 th Street South)
Table II.13	Drive Time and Speed between Intersections, 2012 (Foothills North)
Table II.14	Drive Time and Speed between Intersections, 2012 (Foothills South)

Table II.1: Time Traveled on North-South Corridors, 2012					
	Mean Total Trip Time	Shortest Trip Time	Longest Trip Time	Trip Distance (miles)	Average Speed (mph)
Broadway					
North	16 min 20 sec	13 min 39 sec	21 min 00 sec	6.2	25.4
South	14 min 51 sec	12 min 48 sec	18 min 28 sec	6.2	26.7
28th Street					
North	09 min 53 sec	06 min 41 sec	14 min 10 sec	4.2	29.2
South	09 min 15 sec	06 min 31 sec	12 min 16 sec	4.2	28.5
Foothills					
North	06 min 31 sec	04 min 54 sec	08 min 09 sec	3.5	35.4
South	06 min 45 sec	04 min 55 sec	08 min 42 sec	3.5	36.3

Table II.2: Stops on North-South Corridors, 2012					
	Mean Number of Stops	Fewest Stops	Most Stops	Mean Chance of Stopping	Number of Trips
Broadway					
North	8.1	4	16	34%	15
South	7.0	5	13	29%	15
28th Street					
North	4.7	2	8	47%	15
South	4.5	0	7	45%	15
Foothills					
North	1.9	0	4	39%	15
South	2.4	0	6	48%	15

Note: For historic comparison, Tables II.1 and II.2 use the historic (shorter) corridor lengths and do not include recently added nodes.

Table II.3: Time Stopped on North-South Corridors, 2012				
	Mean Percent of Time Stopped	Mean Total Time Stopped	Shortest Time Stopped	Longest Time Stopped
Broadway North South	24% 18%	04 min 03 sec 02 min 46 sec	01 min 30 sec 01 min 14 sec	08 min 28 sec 05 min 29 sec
28th Street North South	26% 24%	02 min 45 sec 02 min 23 sec	00 min 19 sec 00 min 00 sec	05 min 47 sec 05 min 09 sec
Foothills North South	17% 14%	01 min 13 sec 01 min 01 sec	00 min 00 sec 00 min 00 sec	02 min 35 sec 02 min 30 sec

Table II.4: Drive Time by Time of Day, 2012			
	Mean Total Trip Time	Mean Number of Stops	Mean Time Stopped
Broadway North			
7:30 AM	14 min 58 sec	5.8	02 min 42 sec
12:00 Noon	15 min 15 sec	7.0	03 min 12 sec
5:00 PM	18 min 47 sec	11.4	06 min 16 sec
Broadway South			
7:30 AM	15 min 27 sec	7.8	03 min 02 sec
12:00 Noon	13 min 35 sec	6.0	01 min 59 sec
5:00 PM	15 min 30 sec	7.2	03 min 16 sec
28th Street North			
7:30 AM	07 min 48 sec	2.6	01 min 12 sec
12:00 Noon	11 min 21 sec	6.0	03 min 48 sec
5:00 PM	10 min 29 sec	5.6	03 min 14 sec
28th Street South			
7:30 AM	07 min 44 sec	3.4	01 min 12 sec
12:00 Noon	09 min 08 sec	4.0	02 min 12 sec
5:00 PM	10 min 54 sec	6.0	03 min 44 sec
Foothills North			
7:30 AM	07 min 02 sec	2.8	01 min 30 sec
12:00 Noon	05 min 16 sec	0.6	00 min 16 sec
5:00 PM	07 min 14 sec	2.4	01 min 53 sec
Foothills South			
7:30 AM	06 min 26 sec	2.0	00 min 43 sec
12:00 Noon	05 min 43 sec	1.4	00 min 30 sec
5:00 PM	08 min 06 sec	3.8	01 min 50 sec

Table II.5: Ten Worst Intersections by Chances of Being Stopped, 2012

Intersection	Direction	Chances of Being Stopped
Foothills @ Valmont	Southbound	87%
28th @ Colorado	Northbound	80%
28th @ Canyon	Southbound	80%
Broadway @ Arapahoe	Northbound	80%
Broadway @ University	Southbound	80%
Broadway @ Table Mesa	Northbound	73%
28th @ Arapahoe	Northbound	67%
28th @ Iris/Diagonal	Northbound	67%
28th @ Iris/Diagonal	Southbound	67%
Broadway @ Iris	Northbound	67%

Table II.6: Ten Worst Intersections by Length of Stop, 2012

Intersection	Direction	Mean Length of Stop
28th @ Arapahoe	Northbound	01 min 17 sec
28th @ Valmont	Northbound	00 min 58 sec
Broadway @ Table Mesa	Northbound	00 min 56 sec
Broadway @ Canyon	Northbound	00 min 55 sec
28th @ Canyon	Southbound	00 min 54 sec
Broadway @ University	Northbound	00 min 49 sec
Broadway @ Arapahoe	Southbound	00 min 49 sec
Foothills @ Baseline	Southbound	00 min 48 sec
28th @ Canyon	Northbound	00 min 47 sec
Broadway @ Spruce	Southbound	00 min 46 sec

Table II.7: Ten Best Intersections by Chances of Being Stopped, 2012		
Intersection	Direction	Chances of Being Stopped
28th @ Kalmia	Northbound	0%
28th @ Winding Trail	Northbound	0%
28th @ Jay Road	Northbound	0%
28th @ Mapleton	Southbound	0%
28th @ Walnut	Southbound	0%
28th @ Table Mesa	Southbound	0%
Broadway @ Dartmouth	Northbound	0%
Broadway @ Pennsylvania	Northbound	0%
Broadway @ Linden	Northbound	0%
Broadway @ Alpine	Southbound	0%

Table II.8: Ten Best Intersections by Length of Stop, 2012		
Intersection	Direction	Mean Length of Stop
28th @ Kalmia	Northbound	00 min 00 sec
28th @ Winding Trail	Northbound	00 min 00 sec
28th @ Jay Road	Northbound	00 min 00 sec
28th @ Mapleton	Southbound	00 min 00 sec
28th @ Walnut	Southbound	00 min 00 sec
28th @ Table Mesa	Southbound	00 min 00 sec
Broadway @ Dartmouth	Northbound	00 min 00 sec
Broadway @ Pennsylvania	Northbound	00 min 00 sec
Broadway @ Linden	Northbound	00 min 00 sec
Broadway @ Alpine	Southbound	00 min 00 sec

Table II.9: Drive Time and Speed Between Intersections, 2012

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
Broadway North	Greenbriar Boulevard	n/a	n/a
	Hanover Avenue	36.2	00 min 56 sec
	Table Mesa Drive	18.8	01 min 13 sec
	Dartmouth Avenue	38.0	00 min 38 sec
	27th Way	32.7	01 min 04 sec
	Baseline Road	27.5	00 min 49 sec
	Regent Drive	31.7	00 min 38 sec
	Euclid Avenue	25.2	00 min 43 sec
	College Avenue	28.7	00 min 21 sec
	Pennsylvania Avenue	24.9	00 min 17 sec
	University Avenue	21.4	00 min 32 sec
	Arapahoe Avenue	16.5	01 min 07 sec
	Canyon Boulevard	16.0	00 min 47 sec
	Walnut Street	21.4	00 min 19 sec
	Pearl Street	14.8	00 min 30 sec
	Spruce Street	21.5	00 min 16 sec
	Pine Street	24.8	00 min 14 sec
	North Street	22.6	00 min 53 sec
	Alpine Avenue	24.1	00 min 14 sec
	Balsam Avenue	17.0	00 min 27 sec
	North Boulder Rec.	27.3	00 min 50 sec
	Iris Avenue	19.3	01 min 10 sec
	Linden Avenue	32.4	00 min 35 sec
Quince Avenue	33.3	00 min 54 sec	
Violet Avenue	33.0	00 min 52 sec	
Lee Hill Road	25.0	01 min 14 sec	

Table II.10: Drive Time and Speed Between Intersections, 2012

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
Broadway South	Lee Hill Road	n/a	n/a
	Violet Avenue	26.7	01 min 08 sec
	Quince Avenue	30.8	00 min 54 sec
	Linden Avenue	31.6	00 min 57 sec
	Iris Avenue	30.0	00 min 38 sec
	North Boulder Rec.	25.9	00 min 44 sec
	Balsam Avenue	24.1	00 min 58 sec
	Alpine Avenue	27.8	00 min 11 sec
	North Street	26.5	00 min 12 sec
	Pine Street	23.6	00 min 53 sec
	Spruce Street	20.9	00 min 20 sec
	Pearl Street	20.8	00 min 13 sec
	Walnut Street	13.2	00 min 31 sec
	Canyon Boulevard	12.5	00 min 32 sec
	Arapahoe Avenue	20.5	00 min 33 sec
	University Avenue	17.4	01 min 04 sec
	Pennsylvania Avenue	25.6	00 min 20 sec
	College Avenue	27.3	00 min 16 sec
	Euclid Avenue	29.7	00 min 20 sec
	Regent Drive	27.2	00 min 40 sec
Baseline Road	25.8	00 min 55 sec	
27th Way	36.1	00 min 28 sec	
Dartmouth Avenue	37.8	00 min 55 sec	
Table Mesa Drive	28.4	00 min 58 sec	
Hanover Avenue	37.5	00 min 26 sec	
Greenbriar Boulevard	40.3	00 min 51 sec	

Table II.11: Drive Time and Speed Between Intersections, 2012

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
28th Street North	Table Mesa Drive	n/a	n/a
	Colorado Avenue	40.4	02 min 59 sec
	Arapahoe Avenue	20.5	01 min 50 sec
	Canyon Boulevard	24.3	00 min 40 sec
	Walnut Street	31.5	00 min 26 sec
	Pearl Street	21.3	00 min 27 sec
	Mapleton Avenue	27.9	00 min 29 sec
	Valmont Road	20.8	00 min 59 sec
	Glenwood Drive	29.7	00 min 32 sec
	Iris Avenue	17.3	01 min 05 sec
	Kalmia Avenue	35.5	00 min 26 sec
	Winding Trail Drive	39.1	00 min 22 sec
	Jay Road	40.9	00 min 47 sec

Table II.12: Drive Time and Speed Between Intersections, 2012

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
28th Street South	Jay Road	n/a	n/a
	Winding Trail Drive	39.2	00 min 50 sec
	Kalmia Avenue	32.8	00 min 29 sec
	Iris Avenue	21.2	00 min 57 sec
	Glenwood Drive	27.7	00 min 34 sec
	Valmont Road	25.7	00 min 45 sec
	Mapleton Avenue	30.5	00 min 30 sec
	Pearl Street	19.4	00 min 50 sec
	Walnut Street	28.0	00 min 16 sec
	Canyon Boulevard	15.5	01 min 15 sec
	Arapahoe Avenue	22.4	00 min 40 sec
	Colorado Avenue	27.2	01 min 11 sec
	Table Mesa Drive	52.3	02 min 17 sec

Table II.13: Drive Time and Speed Between Intersections, 2012

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
Foothills Parkway North	Table Mesa Drive	n/a	n/a
	Baseline Drive	33.1	01 min 41 sec
	Colorado Avenue	40.1	01 min 03 sec
	Arapahoe Avenue	28.3	01 min 09 sec
	Valmont Road	34.9	01 min 58 sec
	Iris Avenue	44.9	00 min 39 sec

Table II.14: Drive Time and Speed Between Intersections, 2012

Street	Intersection	Mean Speed From Previous Intersections (mph)	Mean Time from Previous Intersection
Foothills Parkway South	Iris Avenue	n/a	n/a
	Valmont Road	23.7	01 min 31 sec
	Arapahoe Avenue	38.5	01 min 39 sec
	Colorado Avenue	37.5	00 min 46 sec
	Baseline Drive	33.6	01 min 29 sec
	Table Mesa Drive	39.3	01 min 20 sec



INFORMATION PACKET MEMORANDUM

To: Members of City Council

From: Jane S. Brautigam, City Manager
Maureen Rait, Executive Director of Public Works
Carl Castillo, Policy Advisor
Mike Sweeney, Acting Director of Transportation for Public Works
Kathleen Bracke, GO Boulder Manager
Natalie Stiffler, Transportation Planner II, GO Boulder

Date: June 16, 2015

Subject: Information Item: Update on Regional Transportation District items

EXECUTIVE SUMMARY

The purpose of this Information Item is to provide a brief summary of transit-related items that the city is working on with the Regional Transportation District (RTD). City Council members and city staff have been coordinating with RTD Board members and staff, along with partner agencies (including the US 36 Mayors and Commissioners Coalition and 36 Commuting Solutions), to advance the city's [Transportation Master Plan](#) (TMP) goals. Recent discussion topics have included updates on RTD's fare structure policy and proposed US 36 Bus Rapid Transit (BRT) service plan. Additional updates included the changes associated with the opening of the Boulder Junction transit station this summer; status of RTD's work to deploy real-time transit information; availability of smart card data; new interregional FLEX Express service; and progress to-date on the Communitywide Eco Pass program with Boulder County.

FISCAL IMPACT

City staff continue to work with RTD to quantify fiscal impacts to community residents, businesses and the city organization in response to specific issues and proposals.

COMMUNITY SUSTAINABILITY ASSESSMENTS AND IMPACTS

- **Economic:** Transportation costs are a significant portion of household expenses and important to business competitiveness and employee retention. Providing regional transit options is a particularly important for non-resident in-commuters, as it provides alternatives to long-distance, single-occupant vehicle (SOV) travel and increases access to jobs for low- and moderate-income families.

- **Environmental:** Regional transit options have the potential to help the city achieve the environmental objectives of the TMP objectives by reducing mid- and long-distance SOV trips; managing traffic congestion; and significantly reducing air pollution emissions, including greenhouse gases (GHGs).
- **Social:** Equitable access to mobility is an important goal of the TMP. Improved transit access is particularly important to seniors, people with low incomes, and people with disabilities. Recent research shows that transit riders tend to walk more and be healthier than auto commuters, while neighborhood accessibility is an increasing focus related to public health for both children and adults.

BACKGROUND

The City of Boulder continues to partner with RTD to advance the TMP goals and enhance access to/from the Boulder community and surrounding region. Working in collaboration with the US 36 Mayors and Commissioners Coalition (MCC) and 36 Commuting Solutions, the city continues to press RTD to provide high-quality local and regional transit service. Ongoing work continues to focus on creating world-class Bus Rapid Transit (BRT) infrastructure and service along the US 36 corridor that connects to both the downtown Boulder Transit Center and the new Boulder Junction transit station. The city continues to push for enhancements to other local, regional, and interregional transit routes, as identified in the TMP.

ANALYSIS

RTD Fare Structure Policy

Through the efforts of Mayor Appelbaum and other members of City Council, along with the US 36 MCC, the RTD Board recently approved an updated fare structure policy that creates better alignment among the bus and rail transit fares. Prior versions of the fare policy would have disadvantaged local and regional bus service patrons compared with rail patrons. RTD's new distance-based fare policy more equitably sets fares for both rail and bus patrons. The city continues to work with RTD to follow through on the next steps in RTD's fare policy discussions regarding updates to the business, neighborhood, and student Eco Pass programs.

RTD's Proposed US 36 BRT Service Plan

The city, US 36 MCC, and 36 Commuting Solutions are working together to encourage RTD to revise the proposed US 36 BRT service plan prior to opening day in January 2016. While RTD's proposed service plan enhances frequency along the US 36 corridor overall, it diminishes existing midday express service to/from Denver and downtown Boulder along Broadway, as well as reduces Route S service to/from Denver and east Boulder employment areas.

The city, US 36 MCC, and 36 Commuting Solutions are pressing RTD to increase the allocation of operating resources from FasTracks funding to the US 36 corridor service so that all existing service levels can be maintained, as well as adding new services. In addition, the corridor partners are requesting that new service be added to/from Denver and Boulder Junction to

support a wider array of trips by transit, including commute trips as well as off-peak trips and service to/from Denver International Airport. So far, the RTD staff has not been supportive of the service requests from the US 36 corridor communities. Outreach is continuing with the RTD Board members, in particular with RTD Board Chair Chuck Sisk. The RTD Board will be voting on the US 36 BRT service plan at their July 28 board meeting. Visit www.GOBoulder.net for more information about RTD's proposed BRT service plan and to view the comments provided to-date by the City of Boulder and US 36 MCC.

Boulder Junction Transit Station – Scheduled Opening August 2015

An exciting milestone for Boulder Junction is the opening of the new underground transit station at Depot Square planned for mid-August. Existing transit routes such as the S and HX will begin using this underground station when it opens.

This new Boulder Junction transit station includes short-term and long-term bicycle parking and other passenger amenities. The city continues to work with Boulder County, RTD, Boulder Junction property owners, and Community Cycles to identify the most appropriate site for a secure Bus-then-Bike shelter at Boulder Junction to further enhance bicycle parking for transit patrons.

A grand opening celebration for Boulder Junction's transit station is planned for Oct. 24, 2016, in coordination with RTD's other "transit station parties" at each of the BRT stations along the US 36 corridor to celebrate the opening day of the US 36 BRT service in January 2016.

Additional RTD Updates

- RTD operations staff continues to work on deploying real-time information to enhance the passenger experience. Real-time information will be available through Google Trip Planner and RTD's website in the first and second quarters of 2016. In the second and third quarters of 2016, RTD plans to deploy real-time information to RTD's public information displays, which includes the Boulder Junction and downtown Boulder Transit Center stations. The city continues to work with RTD and partners to include real-time data for the local HOP bus.
- RTD introduced smartcards in 2013, using a card-based system provided by Xerox. The smartcard system did not have adequate database capacity for the number of cards issued. There are currently other issues with recharging cards and inactive cards. RTD is working to address these issues with the database and software. RTD plans to implement stored value on the smart cards in January 2016. RTD's smartcard data is anticipated to be available to partner agencies by the second half of 2016.
- The city is working with Boulder County, Longmont, Loveland, Fort Collins/Transfort, and RTD to launch a new interregional "FLEX Express" transit service from Fort Collins to Boulder, beginning in January 2016. Funding for this new service is being provided through Denver Regional Council of Governments (DRCOG) grant funding, with Boulder County and local jurisdictions jointly contributing to the local match.
- The city is continuing to work with Boulder County, neighboring communities, and RTD to advance analysis of the Communitywide Eco Pass program. More detailed information will be provided to council as part of the TMP update in August 2015.

NEXT STEPS

The city will continue working in partnership with RTD and other agency partners to advance work in all of these areas. More detailed information will be provided to City Council as part of the TMP progress update in August 2015.

The RTD Board meeting regarding the US 36 BRT service plan is scheduled for July 28, 2015.

**CITY OF BOULDER
BEVERAGE LICENSING AUTHORITY
* * * MINUTES * * *
WEDNESDAY, MAY 20, 2015, 3:00 P.M.
CITY COUNCIL CHAMBERS
MUNICIPAL BUILDING – 2ND FLOOR
1777 BROADWAY, BOULDER, COLORADO**

NAME OF BOARD/COMMISSION: Beverage Licensing Authority (BLA)
DATE OF MEETING: May 20, 2015
NAME & PHONE OF PERSON PREPARING SUMMARY: Mishawn Cook, Licensing Manager (303-441-3010)
Kristen Huber, Licensing Specialist (303-441-3034)

NAMES OF MEMBERS, STAFF, AND INVITED GUESTS PRESENT:

Board Members: David Timken, Harriet Barker, Lisa Spalding, and Matthew Califano

Staff Present: Sandra Llanes, Assistant City Attorney, Mishawn Cook, Licensing Manager, and Kristen Huber, Licensing Specialist

QUASI-JUDICIAL MEETING OUTLINE OF AGENDA

1. Administrative Board Matters

i) Member Roll Call

Roll call was taken. A quorum of four BLA members attended with Chair Wallace absent. Kristen Huber noted in Chair Wallace's absence that Vice Chair Timken would conduct the hearing.

ii) Election of BLA Chair and Vice Chair

The BLA Members decided to move the election to the hearing on June 17, 2015.

iii) Approval of BLA minutes from April 15, 2015

Member Spalding moved, Vice Chair Timken seconded, to approve the April 15, 2015 minutes. Motion approved 4:0.

iv) Hearing agenda issues from licensing clerk

Ms. Huber stated that city licensing staff anticipated a request from JW RAON, LLC d/b/a A-OK Liquor to be heard earlier in the agenda order.

Ms. Huber also stated that Bradford Heap, Co-Owner and Managing Member of Pearl Dive LLC d/b/a Oyster Road, would not be at the hearing until 6:00 PM.

Member Barker requested to change the agenda order so that Agenda Item 14 could be heard after Agenda Item 8 as both agenda items are related to Chau Tam Pho 75 Inc. d/b/a Black Pepper Pho. Vice Chair Timken moved, Member Califano seconded, to move Agenda Item 14 after Agenda Item 8.

2. Matters from the Boulder Police Department (BPD).

Officer Daniel Bergh appeared on behalf of the BPD and discussed summons issued for fraudulent identification cards in 2014.

3. Matters from the Responsible Hospitality Group (RHG).

Mike Absalom provided an update to the BLA on behalf of the RHG. The RHG attendance list for April was entered as Agenda Item 3, Exhibit 1.

4. Show cause hearing concerning a February 13, 2015 violation and whether the Retail Liquor Store type liquor license held by Integrity Retail Partners LLC d/b/a Hazel's Beverage World, 1955 28th Street, Boulder, CO 80301, should be suspended or revoked.

Bruce Dierking, Member/Manager, James Dean, Store Manager, and Carleen Dierking, Accountant, were sworn in. Hearing procedures were read. No BLA members disclosed ex-parte communications or conflicts of interest.

Lucas Markley, Assistant City Attorney, stated that a stipulation to the facts in this matter had been reached. Member Barker moved, Spalding seconded, to accept the stipulation. Motion approved 4:0.

Mr. Dierking, Mr. Dean, and Ms. Dierking provided testimony regarding mitigating evidence.

The BLA noted substantial mitigating evidence and some aggravating factors. Member Barker moved, Califano seconded, to set this violation penalty at 1 suspension day served with 8 days held in abeyance. Motion approved 3:1 with Vice Chair Timken opposed.

The licensee requested to serve the 1 suspension day on June 15, 2015. Member Califano moved, Spalding seconded, to accept the requested 1 suspension day on June 15, 2015. Motion approved 4:0.

5. Show cause hearing concerning a February 13, 2015 violation and whether the Retail Liquor Store type liquor license held by Do Sook Kim d/b/a Williams Village Liquors, 655 30th Street, Boulder, CO 80303, should be suspended or revoked.

Do Sook Kim, Owner, and So Jeong Kim, employee, were sworn in. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest.

Mr. Markley stated that a stipulation to the facts in this matter had been reached. Member Spalding moved, Vice Chair Timken seconded, to accept the stipulation. Motion approved 4:0.

Ms. Do Sook Kim and Ms. So Jeong Kim provided testimony regarding mitigating evidence. Copies of TIPS cards were entered as Agenda Item 5, Exhibit 1.

The BLA noted mitigating and aggravating factors. Member Barker moved, Califano seconded, to set this violation penalty at 3 suspension days served with 6 days held in abeyance. Motion approved 4:0.

The licensee requested to serve the 3 suspension days from June 8 to June 10, 2015. Member Barker moved, Spalding seconded, to accept the requested 3 suspension days from June 8 to June 10, 2015. Motion approved 4:0.

6. Show cause hearing concerning a February 13, 2015 violation and whether the 3.2% Beer Off Premise type liquor license held by Rhymer Retail Inc. & 7 Eleven Inc. d/b/a 7-Eleven Store 35069 A, 1091 13th Street, Boulder, CO 80302, should be suspended or revoked.

Brock Rhymer, President and Registered Manager, was sworn in. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest.

Mr. Markley stated that a stipulation to the facts in this matter had been reached. Member Barker moved, Califano seconded, to accept the stipulation. Motion approved 4:0.

Mr. Rhymer provided testimony regarding mitigating evidence.

The BLA noted mitigating and aggravating factors. Member Spalding moved, Vice Chair Timken seconded, to set this violation penalty at 4 suspension days served with 10 days held in abeyance. Motion approved 4:0.

The licensee requested to serve the 4 suspension days from June 1 to June 4, 2015. The BLA moved to accept the requested 4 suspension days from June 1 to June 4, 2015. Motion approved 4:0.

7. Show cause hearing concerning a February 13, 2015 violation and whether the Retail Liquor Store type liquor license held by Boulder Wine Merchants, Ltd d/b/a Boulder Wine Merchant, 2690 Broadway, Boulder, CO 80304, should be suspended or revoked.

Brett Zimmerman, Co-Owner, and Jennifer Zimmerman, Co-Owner, were sworn in. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest.

Mr. Markley stated that a stipulation to the facts in this matter had been reached. Member Spalding moved, Vice Chair Timken seconded, to accept the stipulation. Motion approved 4:0.

Mr. Zimmerman and Ms. Zimmerman provided testimony regarding mitigating evidence.

The BLA noted substantial mitigating and some aggravating factors. Member Barker moved, Member Califano seconded, to set this violation penalty at 1 suspension day served with 8 days held in abeyance. Motion approved 3:1 with Vice Chair Timken opposed.

The licensee requested to serve the 1 suspension day on June 1, 2015. Member Spalding moved, Vice Chair Timken seconded, to accept the requested 1 suspension day on June 1, 2015. Motion approved 4:0.

8. Show cause hearing concerning a February 20, 2015 violation and whether the Temporary Hotel-Restaurant type liquor license held by Chau Tam Pho 75 Inc. d/b/a Black Pepper Pho, 2770 Pearl Street, Suite B, Boulder, CO 80302, should be suspended or revoked.

Hong Tam Nguyen, President, and Chau Ta, Vice President, were sworn in. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest.

Mr. Markley stated that a stipulation to the facts in this matter had been reached. Member Barker moved, Califano seconded, to accept the stipulation. Motion approved 4:0.

Mr. Nguyen and Ms. Ta provided testimony regarding mitigating evidence.

The BLA noted mitigating and aggravating factors. Member Barker moved, Spalding seconded, to set this violation penalty at 3 suspension days served with 11 days held in abeyance. Motion approved 3:1 with Vice Chair Timken opposed.

The licensee requested to serve the 3 suspension days from June 1 to June 3, 2015. Member Barker moved, Spalding seconded, to accept the requested 3 suspension days from June 1 to June 3, 2015. Motion approved 4:0.

9. Public Hearing and Continued Consideration of whether there is good cause for a non-renewal of a January 15, 2015 application from Running Deer LLC d/b/a Volta, 2480 Canyon Boulevard, Unit M-1, Boulder, CO 80301; Jonathan Deering, Co-owner, Managing Member and Registered Manager, Eleni Deering, Co-owner and Managing Member, Robert Deering, Co-owner and Managing Member, Bonnie Deering, Co-owner and Managing Member, with no other owners over a 10% interest; with a premise business mailing address, for a renewal of a Hotel-Restaurant type liquor license.

The licensee did not appear for the hearing. Member Spalding moved, Califano seconded, to continue this Agenda Item to the BLA hearing on June 17, 2015. Motion approved 4:0.

10. Public Hearing and Consideration of a July 21, 2014 application from JTR Boulder, LLC d/b/a World of Beer, 921 Pearl Street, Boulder, CO 80302; Jason Rappaport, 50% Co-owner, Member, and Registered Manager, and Alexander Rappaport, 50% Co-owner and Member; with a business mailing address of 660 S. Colorado Blvd., Denver, CO 80246, for a Transfer of a Hotel-Restaurant type liquor license.

Ms. Huber stated that a memorandum from Jon Stonbraker regarding the Preliminary Findings was entered as Agenda Item 10, Exhibit 1 and a premise diagram was entered as Agenda Item 10, Exhibit 2. Ms. Huber noted that licensing staff received an updated lease agreement. Ms. Huber also noted that the BLA packet included an email from a neighbor of the applicant.

Jon Stonbraker appeared as the licensee's attorney and requested that the evidence for Agenda Item 10 and Agenda Item 11 be heard concurrently.

Jason Rappaport, Co-owner and Registered Manager, and Tina Scott, petitioner with Oedipus Inc., were sworn in and confirmed the ten day premise posting under oath. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Mr. Rappaport provided testimony regarding the transfer and modification applications. Ms. Scott provided testimony regarding the neighborhood petition results for the modification application.

Ms. Llanes noted that the zoning form for the modification application would supersede the zoning form for the transfer application.

Member Barker moved, Vice Chair Timken seconded, to approve this transfer application for a Hotel-Restaurant type liquor license. Motion approved 4:0.

11. Public Hearing and Consideration of a July 21, 2014 application from JTR Boulder, LLC d/b/a World of Beer, 921 Pearl Street, Boulder, CO 80302; Jason Rappaport, 50% Co-owner, Member, and Registered Manager, and Alexander Rappaport, 50% Co-owner and Member; with a business mailing address of 660 S. Colorado Blvd., Denver, CO 80246, for a Permanent Modification of a Hotel-Restaurant type liquor license.

Jon Stonbraker appeared as the licensee's attorney and the evidence for this Agenda Item was heard concurrently with Agenda Item 10.

Ms. Huber stated that an email from City of Boulder Planning and Development Services regarding the Use Review disposition was entered as Agenda Item 11, Exhibit 1.

Member Barker moved, Califano seconded, to approve this application for a Permanent Modification of a Hotel-Restaurant type liquor license. Motion approved 4:0.

12. Public Hearing and Consideration of a December 15, 2014 application from Boulder Beer Inc. d/b/a Boulder Beer Company, 2880 Wilderness Place, Boulder, CO 80301; Jeffrey Brown, President, Co-owner and Registered Manager, Diane Greenlee, Vice President and Co-owner, Gina Day, Co-owner, and David Zuckerman, Co-owner; with a premise business mailing address, for a Permanent Modification of a Brew Pub type liquor license.

Jeff Brown, President and Co-owner, was sworn in and confirmed the ten day premise posting under oath. Tina Scott remained sworn in for Agenda Item 10 and 11. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Mr. Brown provided testimony regarding the modification application. Ms. Scott provided testimony regarding the neighborhood petition results.

Member Spalding moved, Vice Chair Timken seconded, to approve this application for a Permanent Modification of a Brew Pub type liquor license. Motion approved 4:0.

13. Public Hearing and Continued Consideration of a December 22, 2014 application from Green Rush Café, LLC d/b/a Green Rush Café, 2018 Broadway, Boulder, CO 80302; Gregory DiSilvestri, CEO and Co-owner, Rod Feiner, COO, Co-owner, and Registered Manager, and Stephen Replin, Investor, with no other owners over a 10% interest; with a premise business mailing address, for a Transfer of a Beer & Wine type liquor license.

Ms. Huber stated that the applicant had submitted an amended state application, financial statement, Individual History Record, and corporate documents due to a change in ownership and these documents were entered as Agenda Item 13, Exhibit 1. Ms. Huber also stated that licensing staff had not received a fingerprint card for the new owner or a complete lease agreement and therefore the application was incomplete.

Rod Feiner, COO, Co-owner, and Registered Manager, was sworn in and confirmed the ten day premise posting under oath. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Mr. Feiner requested that this Agenda Item be heard later in the hearing so that he could contact the co-owners and decide whether to request a continuance or withdraw the application.

This Agenda Item was heard after Agenda Item 18. Mr. Feiner remained sworn in and requested a continuance to the BLA hearing on June 17, 2015.

Member Spalding moved, Califano seconded, to continue this Agenda Item to the BLA hearing on June 17, 2015. Motion approved 4:0.

- 14. Public Hearing and Consideration of a January 29, 2015 application from Chau Tam Pho 75 Inc. d/b/a Black Pepper Pho, 2770 Pearl Street, Suite B, Boulder, CO 80302; Hong Tam Nguyen, President, 50% Owner, and Registered Manager, and Chau Ngoc Ta, Vice President and 50% Owner; with a premise business mailing address, for a Transfer of a Hotel-Restaurant type liquor license.**

This Agenda Item was heard after Agenda Item 8.

Hong Tam Nguyen, President, and Chau Ta, Vice President, continued being sworn in from Agenda Item 8 and confirmed the ten day premise posting under oath. Hearing procedures were read. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Mr. Nguyen and Ms. Ta provided testimony regarding the transfer application.

Member Barker moved, Vice Chair Timken seconded, to approve this transfer application for a Hotel-Restaurant type liquor license. Motion approved 4:0.

- 15. Public Hearing and Consideration of a February 17, 2015 application from Makin Moves LLC d/b/a Cheba Hut Toasted Subs, 1315 College Avenue, Boulder, CO 80302; Seth Larsen, Member and Registered Manager, and Matthew Clark-Johnson, Member; with a premise business mailing address, for a Permanent Modification of a Hotel-Restaurant type liquor license.**

Seth Larsen, Member and Registered Manager, Matthew Clark-Johnson, Member, and Carol Johnson, petitioner with Esquire Petitioning Services, were sworn in and confirmed the ten day premise posting under oath. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Mr. Larsen and Mr. Clark-Johnson provided testimony regarding the modification application. Ms. Johnson provided testimony regarding the neighborhood petition results.

Member Barker moved, Member Califano seconded, to approve this application for a Permanent Modification of a Hotel-Restaurant type liquor license. Motion approved 4:0.

- 16. Public Hearing and Consideration of a March 16, 2015 application from JW RAON, LLC d/b/a A-OK Liquor, 2690 28th Street, Unit A, Boulder, CO 80301; Jin Hee Kim, Owner, Member, and Registered Manager; with a premise business mailing address, for a Transfer of a Retail Liquor Store type liquor license.**

Jin Hee Kim, Owner, Member, and Registered Manager, and Cheor Le, Interpreter, were sworn in and confirmed the ten day premise posting under oath. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Ms. Kim provided testimony regarding the transfer application.

Member Spalding moved, Vice Chair Timken seconded, to approve this application for a transfer of a Retail Liquor Store type liquor license. Motion approved 4:0.

17. Public Hearing and Consideration of a March 16, 2015 application from Food Lab LLC d/b/a Food Lab, 1825 Pearl Street, Unit A, Boulder, CO 80302; Casey Easton, 100% Owner and Manager; with a business mailing address of 2100 Orchard Avenue, Boulder, CO 80304, for a New Beer and Wine type liquor license.

Casey Easton, Owner and Manager, was sworn in and confirmed the ten day premise posting under oath. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Ms. Easton provided testimony regarding the application and petition results.

Member Spalding moved, Vice Chair Timken seconded, to approve this application for a New Beer and Wine type liquor license. Motion approved 4:0.

18. Public hearing and consideration of a March 25, 2015 application from Pearl Dive, LLC d/b/a Oyster Road, 1043 Pearl Street, Boulder, CO 80302; Bradford Heap, Co-owner and Managing Member, Carol Vilate, Co-owner and Member, and Camille Bradbury, Registered Manager; with a premise business mailing address, for a Permanent Modification of Hotel-Restaurant type liquor license.

Bradford Heap, Co-Owner and Managing Member, was sworn in and confirmed the ten day premise posting under oath. Hearing procedures were waived. No BLA members disclosed ex-parte communications or conflicts of interest. No third parties requested interested party status and no public comments were received.

Mr. Heap provided testimony regarding the modification application and petition results.

Member Barker moved, Member Califano seconded, to approve this application for a Permanent Modification of a Hotel-Restaurant type liquor license. Motion approved 4:0.

19. Matters from the Assistant City Attorney

No matters were discussed.

20. Matters from the Licensing Clerk

Ms. Huber stated that an email from Mishawn Cook regarding House Bill 15-1217 was entered as Agenda Item 20, Exhibit 1, and an email from Chair Wallace regarding his absence from the hearing was entered as Agenda Item 20, Exhibit 2.

A. Neighborhood boundary settings for application for June 17, 2015 BLA hearing

- i) **4871 Broadway, Inc. d/b/a The Bustop – Permanent Modification of a Tavern type liquor license at 4871 N Broadway, Boulder, CO 80304**

The following neighborhood boundaries were discussed: Boulder city limits on the North, Linden Avenue on the South, US Highway 36 on the East, and Boulder city limits on the West. Member Spalding moved, Barker seconded, to set the neighborhood boundaries for this application as described above. Motion approved 4:0.

- ii) **Voss Home LLC d/b/a Voss Art & Home – New Art Gallery Permit type liquor license at 1537 Pearl Street, Boulder, CO 80302**

The following neighborhood boundaries were discussed: Maxwell Avenue Extended on the North, Arapahoe Avenue on the South, Folsom Street on the East, and 9th Street on the West. Member Spalding moved, Barker seconded, to set the neighborhood boundaries for this application as described above. Motion approved 4:0.

B. Informational items

- i) **May Special Events and Temporary Modifications**

This material was stated to be in the hearing packet.

- ii) **May Liquor License renewal mailing list**

This material was stated to be in the hearing packet.

- iii) **Email from Kelly Haralson regarding compliance checks conducted by the Liquor Enforcement Division**

This material was stated to be in the hearing packet.

- iv) **Emails from Michele Lamb regarding tentative dates and topics for the BLA retreat to be held on Thursday, June 11, 1-5 pm**

This material was stated to be in the hearing packet.

- v) **Letters from Mishawn Cook and copies of state inspection reports for the following licensees: Amante Uptown, North Boulder Liquor, Reds Liquor, and Pupusas Sabor Hispano**

This material was stated to be in the hearing packet.

vi) Emails and letters from Mishawn Cook and city residents regarding an event at Voodoo Hair Lounge on April 25, 2015

This material was stated to be in the hearing packet. The BLA requested to schedule Voodoo Hair Lounge for non-administrative processing at the time of their next renewal.

vii) Email from Mishawn Cook regarding new Distillery Pub license class and a copy of the Distillery Pub Bill

This material was stated to be in the hearing packet. Ms. Cook noted that for state license applications such as breweries, wineries, and distilleries, local licensing authorities could provide input to the state regarding these applications but it appears that a local public hearing would not be allowed.

21. Matters from the Chair and Members of the Authority

Member Timken discussed the Felony DUI bill and a bill allowing people on probation to obtain and use medical marijuana cards.

The BLA discussed agenda topics for the BLA retreat on June 11, 2015.

ADJOURNMENT

Member Spalding moved, Vice Chair Timken seconded, to adjourn the meeting. Motion approved 4:0, thus the hearing was adjourned at 8:15 p.m.

TIME AND LOCATION OF FUTURE MEETINGS, COMMITTEES OR SPECIAL HEARINGS:

3rd Wednesday of every Month at 3PM in City Council Chambers for 2015.

Attested:

Approved:

Mishawn J. Cook, Tax and License Manager

Vice Chair of Beverage Licensing Authority

**CITY OF BOULDER
LANDMARKS BOARD
April 1, 2015
1777 Broadway, Council Chambers Room
6 p.m.**

The following are the minutes of the April 1, 2015 City of Boulder Landmarks Board meeting. Due to a power outage, an audio recording of the meeting was not made and the following minutes more extensive due to the lack of a recording.

BOARD MEMBERS:

Kate Remley, Vice Chair
Mike Schreiner
Fran Sheets

STAFF MEMBERS:

Debra Kalish, Senior Assistant City Attorney
James Hewat, Senior Historic Preservation Planner
Marcy Cameron, Historic Preservation Planner
Angela Smelker, Historic Preservation Intern
Cindy Spence, Landmarks Board Secretary

1. CALL TO ORDER

The roll having been called, Vice Chair **K. Remley** declared a quorum to be present at 6:20. Because there were no lights in Council Chambers, the meeting was convened in the Municipal Building Lobby.

2. APPROVAL OF MINUTES

On a motion by **K. Remley**, seconded by **M. Schreiner**, the Landmarks Board approved (3-0) the minutes of the March 4, 2015 board meeting.

3. PUBLIC PARTICIPATION FOR ITEMS NOT ON THE AGENDA

There was no public comment.

**4. DISCUSSION OF LANDMARK ALTERATION AND DEMOLITION
APPLICATIONS ISSUED AND PENDING**

- **Statistical Report**

There was no discussion of the statistical report.

5. ACTION ITEMS

A. Structures of Merit Informational Session

M. Cameron gave a presentation regarding information on the Structures of Merit program. Approximately 12 people attended and staff answered questions about the program. At the conclusion of the Structures of Merit discussion, a short break was taken. The lights having come back on, the meeting was reconvened in Council Chambers at 6:54 p.m.

B. Public hearing and consideration of a Landmark Alteration Certificate to expand existing carriage house into a larger garage at 541 Highland Ave. in the Mapleton Hill Historic District, per section 9-11-18 of the Boulder Revised Code (HIS2015-00029). Applicant: Barbee James. Owners: Christopher and Jennifer Centeno.

All board members made site visits.

Staff Presentation

J. Hewat presented to the board, recommending that the Landmarks Board deny the application or the applicant withdraw and redesign.

Applicant's Presentation

Barbee James, 1800 Commerce St., Ste. D, architect for the project, spoke in support of the Landmark Alteration Certificate application. **B. James** spoke to the proposed location of the garage doors along the alley, the re-use of the original bricks, and that she would prefer that the design not impact the historic rose garden, walking pad or swimming pool.

Public Hearing

Caroline Stepanek, 720 11th St., resident of Boulder, spoke in opposition of the Landmark Alteration Certificate application. She stated that the site creates a unique dimension of its own with the house, carriage house and yard. The carriage house is special and has a unique feature, noting that there is a grease pit which was used to change the oil of cars in early years. **C. Stepanek** stated that if the carriage house is altered it would destroy the integrity of the historic property.

Abby Daniels, 1123 Spruce St., Executive Director of Historic Boulder, Inc., spoke in support of the staff recommendations to deny the Landmark Alteration Certificate application. She stated that the alleyscapes are an important part of Boulder and the proposed plan does not meet the design guidelines.

Applicant's Rebuttal

Barbee James, rebutted and stated that the owners would not let the remodel be cheap, but would take great care in the design and materials.

Board discussion

M. Schreiner supports staff recommendation and stated that the proposed modifications to the north elevation are not in compliance with the provisions of the ordinance. The modifications would not enhance or restore the architecture and the proposed work would adversely affect the character of the landmarked building. In addition, they would distract from the historic character. **M. Schreiner** suggested the applicant either withdraw or reconfigure the proposed plans.

F. Sheets agreed with the staff recommendation that the proposal does not meet the design guidelines. The proposal will alter the historic and architectural integrity of the carriage house.

While she understands that the plan will be a better way to fill the needs of the owner, she cannot find anything in the Mapleton Guidelines to support the project.

K. Remley agreed with the staff recommendation and stated that she sympathizes with the owner's needs, but urges the owner and applicant to withdraw and return to the Board with a redesign that meets the design guidelines. While she acknowledges that the owners have done a great job with the house since they purchased it in 2005, the guidelines are very specific.

J. Hewat asked the applicant if they would want a garage door on the south elevation. **B. James** stated that she cannot find another design to get a car in the garage and that a different type of door would be necessary. **K. Remley** stated that changing the opening on the existing structure would not be supported by the guidelines. **F. Sheets** stated that it would be destroying the structure and rebuilding it. **J. Hewat** suggested that the opening to the doors be analyzed. Alleys in Boulder have been identified as important and on this carriage house, the north, east and west elevations are all primary. **J. Hewat** suggested modifying the doors and to make them more operable. **K. Remley** stated that staff would be available for consultation for recommendations and encouraged the applicants to withdraw the application. If denied by the board, an application that is substantially similar could not be submitted for 1 year.

The applicant withdrew their application for redesign.

C. Public hearing and consideration of a demolition permit for the house and five accessory buildings located at 1035 Kalmia Ave., non-landmarked buildings over 50 years old, pursuant to Section 9-11-23 of the Boulder Revised Code (HIS2014-00364). Applicant/ Owner: Carlo Gallegos, AGR Building.

All board members made site visits.

Staff Presentation

M. Cameron presented to the board, recommending that the Landmarks Board issue a stay of demolition.

Questions for Staff

K. Remley stated that there were a number of outbuildings included on the property and asked if there are other properties similar to this with this number of outbuildings intact. **M. Cameron** stated that this is a unique number of stone buildings that are intact and that remain from Boulder's early agricultural period. **K. Remley** inquired if it would be possible to use the outbuildings or structures as owner accessible units. **M. Cameron** stated that it would be dependent upon the amount of repair needed and the regulations of the zoning district.

K. Remley inquired if the roof on the flat roof structure was viable. **M. Cameron** stated that it does slope for drainage and that the north side has retained severe water damage. At this time, there is a hole in the roof and she is uncertain as to what the extent of repairs is needed.

Applicant's Presentation

The applicant was not present.

Public Hearing

Pia Gerstle, 920 Jasmine Circle, spoke in opposition to the demolition permit. She expressed concern over the proposed demolition and wishes to see the buildings saved and to potentially landmarked. She stated that stone structures could be rehabilitated and that they are important to the character of Boulder.

Abby Daniels, 1123 Spruce St., Executive Director of Historic Boulder, Inc., spoke in support of the staff recommendation and stated that the property is worthy of landmarking. She continued to state that all of these types of buildings are disappearing and this gives a unique opportunity to explore creative alternatives to demolition.

Board discussion

F. Sheets stated that all of the buildings are contributing and that all are worthy of the Board's investigating. She will support staff recommendation.

M. Schreiner stated that he supports staff recommendation and that it meets the criteria for landmarking. The buildings relate to the character of the neighborhood. While he expressed concern for the condition of the buildings, this could be explored during the stay.

K. Remley supports staff recommendation and stated that it meets several of the criteria and supports a stay of demolition. . She stated that these are unique buildings and that alternatives to demolition should be explored as well as alternative uses. The criteria states that the board may not consider the condition of the building due to owner neglect, which may be the case for some of these buildings.

Motion

On a motion by **M. Schreiner**, seconded by **K. Remley**, the Landmarks Board issued (3-0) a stay of demolition for the building located at 1035 Kalmia Ave., for a period not to exceed 180 days from the day the permit application was accepted by the city manager, in order to explore alternatives to the demolition of the building, and adopted the following as findings of the board:

A stay of demolition for the house at 1035 Kalmia Ave. is appropriate based on the criteria set forth in section 9-11-23(f) B.R.C, in that the identified property:

1. May be eligible for individual landmark designation based upon its historic, architectural, and environmental significance;
2. Contributes to the character of the neighborhood as an intact representative of the area's past;
3. Has not been demonstrated to be impractical or economically unfeasible to rehabilitate and add onto the existing house.

6. MATTERS FROM THE LANDMARKS BOARD, PLANNING DEPARTMENT AND CITY ATTORNEY

A. Update Memo

- a. 747 12th St. - City Council has asked the Landmarks Board to agree to a tolling agreement to waive the time requirements in the landmark designation of 747 12th St.
 - i. On a motion by **K. Remley**, seconded by **F. Sheets**, the Landmarks Board (3-0) approved the tolling agreement.
 - ii. The Landmarks Board rebutted points regarding 747 12th St. and would like the City Council to consider OAU's and alternative land use. The board decided to address City Council at the April 14 meeting.
- b. Board members all agree on the three nominations for Preservation Awards that will be presented in May 2015.

B. Subcommittee Update

- 1) Demolition Review Process
- 2) Design Guidelines and Code Revisions
- 3) Outreach and Engagement
- 4) Potential Resources

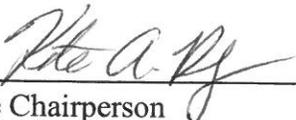
7. DEBRIEF MEETING/CALENDAR CHECK

8. ADJOURNMENT

The meeting adjourned at 8:41 p.m.

Approved on May 6, 2015

Respectfully submitted,



Vice Chairperson

**CITY OF BOULDER
LANDMARKS BOARD
May 6, 2015
1777 Broadway, Council Chambers Room
6 p.m.**

The following are the action minutes of the May 6, 2015 City of Boulder Landmarks Board meeting. A digital recording and a permanent set of these minutes (maintained for a period of seven years) are retained in Central Records (telephone: 303-441-3043). You may also listen to the recording on-line at: www.boulderplandevlop.net.

BOARD MEMBERS:

Kate Remley, Acting Chair

Mike Schreiner

Fran Sheets

Deborah Yin

*John Gerstle **Planning Board representative without a vote*

STAFF MEMBERS:

Debra Kalish, Senior Assistant City Attorney

James Hewat, Senior Historic Preservation Planner

Marcy Cameron, Historic Preservation Planner

Angela Smelker, Historic Preservation Intern

1. CALL TO ORDER

The roll having been called, Acting Chair **K. Remley** declared a quorum at 6:01p.m. and the following business was conducted.

2. APPROVAL OF MINUTES

On a motion by **M. Schreiner**, seconded by **F. Sheets**, the Landmarks Board approved (3-0) (**D. Yin** was not in attendance at the April 1, 2015 board meeting) the minutes as amended of the April 1, 2015 board meeting.

3. PUBLIC PARTICIPATION FOR ITEMS NOT ON THE AGENDA

**4. DISCUSSION OF LANDMARK ALTERATION AND DEMOLITION
APPLICATIONS ISSUED AND PENDING**

- **1035 Kalmia Ave. Stay of Demolition expires August 29th, 2015**
 - **J. Gerstle** recused himself from this discussion. Staff and applicants met since the April 1 meeting to discuss alternatives. Applicants agreed to meet again in a few weeks to discuss further steps when have decided how they want to proceed and discuss alternatives to demolition.
- **Statistical Report**

5. ACTION ITEMS

- A. Public hearing and consideration of a Landmark Alteration Certificate to remove a second-story gambrel roof at the rear addition and in its place to construct a 529 sq. ft. second story at the contributing house at 801 Maxwell Ave. in the Mapleton Hill Historic District, per section 9-11-18 of the Boulder Revised Code (HIS2015-00080). Applicant: Kristin Lewis. Owner: Michael and Susan Shepard.**

All board members made site visits.

Staff Presentation

J. Hewat presented to the board, recommending that the Landmarks Board approve the application with conditions to be reviewed and approved by the Landmarks design review committee.

Applicant's Presentation

Michael Shepard, 801 Maxwell Ave., owner, spoke in support of the Landmark Alteration Certificate application.

Kristin Lewis, 511 Pleasant St., architect, spoke in support of the Landmark Alteration Certificate application.

Public Hearing

Abby Daniels, 1123 Spruce St., Executive Director of Historic Boulder, Inc., spoke in general support of the Landmark Alteration Certificate.

Motion

On a motion by **F. Sheets**, seconded by **D. Yin**, the Landmarks Board approved (3-1, **M. Schreiner** opposed) the proposed removal of the second story addition and construction of a new second story addition as shown on plans dated May 6, 2015 finding that they generally meet the standards for issuance of a Landmark Alteration Certificate in Section 9-11-18, B.R.C. 1981, subject to the conditions below, and adopts the staff memorandum dated May 6, 2015 as findings of the board with the following conditions:

CONDITIONS OF APPROVAL

1. The applicant shall be responsible for constructing the addition in compliance with the approved plans dated May 6, 2015, except as modified by these conditions of approval.
2. Prior to submitting a building permit application and final issuance of a Landmark Alteration Certificate, the applicant shall submit design details to the Landmarks design review committee (Ldrc) including: window and door details, wall material details, siding material details, paint colors, roofing material details and details regarding any hardscaping on the property to ensure that the approval is consistent with the *General Design Guidelines* and the *Mapleton Hill Historic District Guidelines* and the intent of this approval.

This recommendation is based upon staff's opinion that the modification of the roof form of a contributing building will be consistent with Section 9-11-18, Boulder Revised Code 1981, the *Mapleton Hill Historic District Design Guidelines* and the *General Design Guidelines*.

B. Public hearing and consideration of issuance of a demolition permit for the house located at 2245 Arapahoe Ave., a non-landmarked building over 50 years old, pursuant to Section 9-11-23 of the Boulder Revised Code (HIS2015-00053). Applicant/ Owner: Blake Heren.

All board members made site visits.

Staff Presentation

M. Cameron presented to the Landmarks Board recommending a stay of demolition permit be issued.

Applicant's Presentation

Blake Heren, 2245 Arapahoe Ave., owner, spoke in support of a demolition permit.

Public Hearing

Abby Daniels, 1123 Spruce St., Executive Director of Historic Boulder, Inc., spoke in support of a stay of demolition.

Motion

On a motion by **K. Remley**, seconded by **M. Schreiner**, the Landmarks Board issued (5-0) a stay of demolition for the building located at 2245 Arapahoe Ave., for a period not to exceed 180 days from the day the permit application was accepted by the city manager, in order to explore alternatives to the demolition of the building, and adopted the following as findings of the board:

1. The property may be eligible for individual landmark designation based upon its historic and architectural significance;
2. The property contributes to the character of the neighborhood as an intact representative of the area's past;
3. It has not been demonstrated to be impractical or economically unfeasible to rehabilitate the building.

6. MATTERS FROM THE LANDMARKS BOARD, PLANNING DEPARTMENT AND CITY ATTORNEY

- A. Administrative Rule – Clarifying the Demolition Review Process
- B. Letter to City Council
- C. Update Memo
- D. Subcommittee Update
 - 1) Demolition Review
 - 2) Design Guidelines and Code Revisions
 - 3) Outreach and Engagement
 - 4) Potential Resources

7. DEBRIEF MEETING/CALENDAR CHECK

8. ADJOURNMENT

The meeting adjourned at 8:59 p.m.

Approved on June 3, 2015

Respectfully submitted,

Chairperson

A handwritten signature in cursive script, appearing to read "Kate R. J.", is written over a horizontal line. The signature is positioned to the right of the printed word "Chairperson".

**CITY OF BOULDER
LANDMARKS BOARD
June 3, 2015
1777 Broadway, Council Chambers Room
6 p.m.**

The following are the “*unapproved and unsigned*” action minutes of the June 3, 2015 City of Boulder Landmarks Board meeting. A digital recording and a permanent set of these minutes (maintained for a period of seven years) are retained in Central Records (telephone: 303-441-3043). You may also listen to the recording on-line at: www.boulderplandevlop.net.

BOARD MEMBERS:

Kate Remley, Acting Chair

Mike Schreiner

Fran Sheets

Deborah Yin

*John Gerstle **Planning Board representative without a vote*

STAFF MEMBERS:

Debra Kalish, Senior Assistant City Attorney

James Hewat, Senior Historic Preservation Planner

Marcy Cameron, Historic Preservation Planner

1. CALL TO ORDER

The roll having been called, Acting Chair **K. Remley** declared a quorum at 6:03 p.m. and the following business was conducted.

2. APPROVAL OF MINUTES

On a motion by **K. Remley**, seconded by **M. Schreiner**, the Landmarks Board approved (4-0) the minutes of the May 6, 2015 board meeting.

3. PUBLIC PARTICIPATION FOR ITEMS NOT ON THE AGENDA

**4. DISCUSSION OF LANDMARK ALTERATION AND DEMOLITION
APPLICATIONS ISSUED AND PENDING**

- **Statistical Report**

5. ACTION ITEMS

- A. Public hearing and consideration of an application to designate the building and property at 2245 Pine St. as a local historic landmark per Section 9-11-5 of the Boulder Revised Code, 1981 (HIS2013-00206). Applicant/Owner: Kegan and Suzanna Paisley.**

Motion

On a motion by **M. Schreiner**, seconded by **F. Sheets**, the Landmarks Board voted (4-0) with a recommendation to designate the property at 2245 Pine St. as a local historic landmark, to be

known as the Ravenscraft House, finding that it meets the standards for individual landmark designation in Sections 9-11-1 and 9-11-2, B.R.C. 1981, and adopts the staff memorandum dated August 6, 2014 as the findings of the board.

B. Public hearing and consideration of issuance of a demolition permit for the house located at 1420 Bluebell Ave., a non-landmarked building over 50 years old, pursuant to Section 9-11-23 of the Boulder Revised Code (HIS2015-00050). Applicant/Owner: John and Denise Frontczak.

Motion

On a motion by **F. Sheets**, seconded by **D. Yin** to impose a stay-of-demolition, the vote failed (2-2) (**K. Remley** and **M. Schreiner** opposed) and, as a result, the permit to demolish the house will issue once architectural documentation of the building is undertaken, and certified as complete.

6. MATTERS FROM THE LANDMARKS BOARD, PLANNING DEPARTMENT AND CITY ATTORNEY

- A. Draft Administrative Rule Clarifying the Demolition Review Process (move forward with)
- B. Update Memo
- C. Subcommittee Update
 - 1) Demolition Ordinance
 - 2) Outreach
 - 3) Potential Historic Districts and Landmarks
 - 4) Design Guidelines

7. DEBRIEF MEETING/CALENDAR CHECK

8. ADJOURNMENT

The meeting adjourned at 9:28 p.m.

CITY OF BOULDER
PLANNING BOARD ACTION MINUTES
May 7, 2015
1777 Broadway, Council Chambers

A permanent set of these minutes and a tape recording (maintained for a period of seven years) are retained in Central Records (telephone: 303-441-3043). Minutes and streaming audio are also available on the web at: <http://www.bouldercolorado.gov/>

PLANNING BOARD MEMBERS PRESENT:

Aaron Brockett, Chair
Bryan Bowen
Crystal Gray
John Putnam
John Gerstle
Leonard May
Liz Payton

PLANNING BOARD MEMBERS ABSENT:

STAFF PRESENT:

Hella Pannewig, Assistant City Attorney
Susan Meissner, Administrative Assistant III
Charles Ferro, Development Review Manager for CP&S
Elaine McLaughlin, Senior Planner
David Thompson, Civil Engineer- Traffic

1. CALL TO ORDER

Chair, **A. Brockett**, declared a quorum at 6:03 p.m. and the following business was conducted.

2. APPROVAL OF MINUTES

On a motion by **C. Gray** and seconded by **J. Putnam** the Planning Board approved 7-0 the August 28, 2014 minutes.

3. PUBLIC PARTICIPATION

1. **Dean Dinair, 1507 Bluebell Avenue**, thanked Sloane Walbert for explaining the Bluebell project to him. He wanted to assure that the project is sensitive to the neighborhood character. He also felt that the limits for subdivision should be limited.

4. DISCUSSION OF DISPOSITIONS, PLANNING BOARD CALL-UPS/CONTINUATIONS

- A.** Call Up Item: USE REVIEW to establish a 1,605 square foot restaurant, "Troovi Eatery & Juice Bar" in currently unoccupied retail space at Solana Apartments 3060 Pearl Parkway under case no. LUR2015-00025. Expires May 8, 2015.
- B.** Call-Up Item: Minor subdivision review, case no. LUR2015-00008, for the creation of a second residential lot with frontage on 15th Street. Lot 1A to be 7,605 square feet and Lot 2A to be 7,404 square feet. This approval is subject to potential call-up on or before May 11, 2015.
- C.** Call-Up Item: NONCONFORMING USE REVIEW (LUR2015-00017): Request for an expansion to a nonconforming use to remodel the kitchen facilities at the Alpha Chi Omega house located at 1162 12th Street, including mechanical equipment and screening located on the building rooftop and associated ductwork within the rear yard setback. The project site is zoned Residential - High 5 (RH-5). The call-up period expires on May 15, 2015.

Board Questions:

- C. Gray** asked a question about item 4B.
- D. Thompson** answered board questions.

None of these items were called up.

5. PUBLIC HEARING ITEMS

- A. CONCEPT PLAN & REVIEW** - Proposed mixed-use development (Alexan Flatirons) located at McKenzie Junction, 3600 Highway 119 (Diagonal Highway), that includes 295 market-rate multi-family units, 83 affordable-rate multi-family units, associated community buildings and 54,000 SF of commercial office space (with options for partial retail and coffee shop). Reviewed under case no. LUR2015-00028.

Applicant: Bill Holicky
Property Owner: Birch Mountain, LLC

Staff Presentation:

- C. Ferro** introduced the item.
- E. McLaughlin** presented the item to the board.

Board Questions:

- E. McLaughlin** answered questions from the board.
- D. Thompson** answered questions from the board.

Applicant Presentation:

Bill Holicky, the architect, presented the item to the board.

Board Questions:

Bill Holicky, the architect, answered questions from the board.

1. **Michael O'Keeffe, 4520 Nassan Place**, asked for clarification and spoke in opposition to the project. He did not feel that the location was conducive to residential for health and transportation reasons.
2. **David Williard, 3975 Dehesa Court**, expressed some concerns about this development. He supports affordable housing but noted that this is a loud area and is not a pleasant place to be. He did not think that people would use the proposed open space and would instead go to the park adjacent to his house. He thought it would put pressure on the existing community. He asked that the applicant put a playground into the complex in an area that would be utilized.
3. **Hunter Smith, 5105 Independence Rd**, is a neighbor and felt that this development would impact the rural character of the properties to the north and east. He was concerned about the impacts on traffic and noted that the intersection at Independence is a dangerous intersection; he recommended slowing traffic or adding a traffic light.
4. **John Harneg, 3880 N. 57th Street**, lives east of the development and expressed concerns regarding safety and traffic. The Intersection at Independence and the Diagonal is very dangerous. He thought the impact of the residential units and commercial space would be problematic. Traffic speeds are fast on Independence and 57th Street. The airport is close by and asked where this sits in relation to the flight path.
5. **Holly Hyatt Langdon, 3702 Star Lane**, expressed concerns about the impact of the views of open space and surrounding areas. She did not think that the community would be conducive to bike and bus connections for seniors. She felt that it was in a median and would not be a nice place to live.
6. **Jean Aschenbrenner, 4816 Baldwin Place**, noted that the train tracks will be loud for residents. She noted that the current traffic bottlenecks at that location and causes backups. She did not think that there would be sufficient space to expand the highway. Consider the cost of flood repairs to the open space area.
7. **Bob Murphy, 4075 N. 57th Street**, expressed concerns about the air traffic over that development. Other neighbors in the area already do not like the air traffic. He had traffic concerns as well; there are already traffic jams and this would add pressure to that area. He noted that there are many runners, cyclists and horses that use Independence Road; he wanted to assure the safety of all users.

Board Comments:

Summary:

- Board members did not find the proposed project to be entirely compliant with the BCVP.
- Residential use is allowed per the zoning but many board members did not feel that it was an appropriate use. Though not currently allowed, the board thought business industrial or other light commercial uses could be more appropriate given traffic, noise, siting and accessibility concerns.
- Some members recommended that Open Space consider purchasing the property or rezoning it during the BVCP update.

- **L. Payton** suggested that the site be considered for satellite parking. Others did not feel that would be an appropriate use given the existing traffic congestion. Some members did feel that this could be a good site for a rest area with an interpretive educational center.
- The edge conditions of the site are challenging. The board members felt that the proposed plan allowed for views of the Flatirons and liked that “soft” edge to the city.
- Some members suggested that the historic well be moved out into the open space on the site.

Detailed Comments:

Consistency with the BVCP and Land Use

J. Putnam was unsure about this project as it has many contradictory cross currents. Though the current vacant state seems to provide a good edge, it is private property and allowed to be developed. Unless the city changes its mind about acquiring this property, they must allow for it to be developed. Service industrial uses, especially with the Kum and Go adjacent to the property, could be an appropriate use.

L. May did not think that the proposal was entirely consistent w the BVCP policies; it would be better suited as an infill project within the city. He agreed that service industrial uses might make better sense on the site. Given that it has a current land use designation, he didn't think it was appropriate to say that nothing should be built there. He did not think that office space would be appropriate for the same reason as residential because it is a large traffic generator. He thought uses like service industrial with light traffic impacts were most appropriate.

J. Gerstle agreed that service industrial would be a better use for the site. He expressed concerns about senior housing given the transportation limitations for residents who may not drive. Though the residential use was granted by-right, he did not think that it met the BVCP intentions.

A. Brockett thought that this site would function best as open space and expressed concern about putting residential uses on this site. He did not think that this would be a good place to live given the fumes and noise from the two highways, trains and planes. He thought service industrial or office would be a better use for the site. He could possibly imagine a small amount of residential cloaked within other uses. Though there are bus stops, they are difficult to access and thought cyclists would not likely use the path regularly to run errands. Community Cycles did not advocate for this proposal.

B. Bowen felt warmer to the site than the others. He used to commute by bike through this site and understood why cycling could be a theme for the project and the way to tackle residential on this site.

C. Gray thought that the applicant did a good job with a tough site but did not think the predominant use should be residential. She worried that it would not be a liveable place for

residents and felt the site was isolated on an island. She would prefer to see commercial uses and buffer the site as has been proposed.

L. Payton appreciated the staff memo and wanted to incorporate staff's concerns into her comments without reiterating them. She noted that when a development was last proposed on this site, the Planning Board said it was uninhabitable. The DRCOG report said that the traffic will increase considerably in the future and habitability will get worse. She did not think that the residents would open windows or go out to use the open space.

Edge Conditions

J. Putnam felt that the site is challenged, but he did not consider this to be a median. He did not think that a park and ride would be appropriate in this location as the traffic was already problematic. He thought that the McKensie well should be sited to stand out by itself in the field. This could serve as an historical reminder of fossil fuel use.

L. May thought a natural edge to the city would be most effective and suggested that the city should buy this site.

J. Gerstle thought that a park and ride or rest station would be a good use and was worth considering in conjunction with service industrial.

A. Brockett agreed with the applicant that the view of the Flatirons should be the gateway, but thought the proposal was less of a gateway and more of an edge. Keep it subtle to let the views of the Flatirons be the edge. He cited the large art project at the entry point to Longmont. Something of that nature could be incorporated on this site.

B. Bowen agreed that softer edge to town was more appropriate than a large and powerful building. Small houses make good edges from rural highways. The gateway is the view to the flatirons.

C. Gray liked the landscape concept but felt that it would be more natural to continue the softer edge from Four Mile Creek. She did not think that iconic architecture was appropriate and noted that it is unlikely that the city would purchase the site for open space; the city's policy is not to buy Area 1 properties due to cost.

Residential Use

J. Putnam noted that there are other residential sites that have higher noise loads and asked that the applicant address acoustic considerations through design. This will be a rental property and therefore will likely have a higher tolerance for noise. He asked the applicant to return with noise levels in terms of LEQ and day/night levels integrating the train and aircraft considerations. His largest concern about residential uses on this site pertained to the islanding effect. Bike connections could help. Use alternate transit data to show that the site will not be isolated.

A. Brockett thought this site would always be predominantly accessed by cars. Consider incorporating retail that is predominantly accessed by car, i.e. washing machine vendors.

B. Bowen agreed that the site could be good for other uses with less traffic and trips. He thought the proposed neighborhoods functioned well without the open space within them as mountains and views work as open space.

C. Gray thought transition and office uses would be okay for the property but expressed concern about residential use. Some office uses generate less traffic than others. Keep bike connection concept. Don't underestimate Boulder bikers and where they'll ride.

L. Payton felt that the site should be used as a well designed rest stop as opposed to residential. Incorporate interpretive signage with the history of the oil rig, Diagonal Highway, etc. Consider AMPS goals as well; this could be a site for well-designed parking outside of the city to connect to bus service. She felt that the site is a median; the continuity of the median from Boulder to Longmont is important

Transportation and Access

J. Putnam requested that the applicant provide an intense traffic analysis with a TDM plan that includes a large amount of alternate modes and traffic generation potential. Look at planned improvements to sidewalks and access. Include vehicle charging infrastructure. He liked the proposed bike and locker infrastructure.

A. Brockett noted that the proposed underpass is critical and important.

B. Bowen noted that the traffic concerns were important and questioned what the surrounding roads will be like in the future. Look at means for mitigating and funneling traffic. Have good retail exposure and mental mapping for parking. ~~Look at simplifying traffic circulation~~ specifically driving through retail to get to residential areas and the absence of a left hand turn onto Jay Road. Work with the County to add infrastructure connections through adjacent open space.

C. Gray wanted to see a vibrant TDM plan and possible Eco Passes through she noted that bus access is difficult from this site.

L. Payton requested that the applicant provide an analysis of the expected traffic on all adjacent roads in the future, not just traffic to and from the development.

Other Comments

B. Holicky, the applicant, noted that service industrial and some of those uses discussed by the Planning Board are not currently allowed on this site.

L. May recommended that the BVCP update consider this parcel and make other uses allowable. He did not feel that the current land use and zoning are appropriate for this parcel because of its isolation and location between highways.

5. MATTERS FROM THE PLANNING BOARD, PLANNING DIRECTOR, AND CITY ATTORNEY

- The Planning Board will meet at 5 p.m. before the next meeting to discuss findings from the APA conference.
- **Brockett** mentioned that staff might consider a two night hearing for the SPARK project.
- BDAB would like feedback from the Planning Board where they would be the most useful.
- **B. Bowen** noted that it is difficult for the Planning Board to make changes to architecture during site review; it could be appropriate to send such items to BDAB and to clarify their focus areas.
- **L. May** thought it would be valuable for BDAB to focus on the architecture. There have been times that projects went to BDAB before they came to Planning Board and there were problems with discrepancies in feedback/opinions. He thought it would be better for projects to go to BDAB after Concept Review and before Site Review. That would allow the boards to work together better. He thought Design Review on Landmarks Board works well and suggested instating a similar process utilizing BDAB.
- **A. Brockett** requested that BDAB concentrate on architecture and refrain from commenting on use, scale and mass.
- **C. Gray** agreed and asked that BDAB also address public realm.
- **L. May** noted that he and **C. Gray** are on the Housing Process Committee. Council is interested in having a similar committee for the Comp Plan update. Reserve space to discuss this at the June agenda.

6. DEBRIEF MEETING/CALENDAR CHECK

7. ADJOURNMENT

The Planning Board adjourned the meeting at 8:22 p.m.

APPROVED BY



Board Chair

6/9/15

DATE

CITY OF BOULDER
BOULDER, COLORADO
BOARDS AND COMMISSIONS MEETING MINUTES

To listen to the Parks and Recreation Advisory Board meetings in their entirety, please go to the following link:
www.boulderparks-rec.org

Name of Board/Commission: Parks and Recreation Advisory Board
Date of Meeting: April 27, 2015
Contact Information Preparing Summary: Sally Dieterich 303-413-7242
Board Members Present: Mike Conroy, Mike Guzek, Marty Gorce, Valerie Yates, Jennifer Kovarik Board Members Absent: Kelly Wyatt, Tom Klenow
Staff Present: Yvette Bowden, Alison Rhodes, Lisa Martin, Kathleen Alexander
Guests Present: None
Type of Meeting: Advisory/Regular
Agenda Item 1: Call to Order The meeting was called to order at 6:05 p.m. and the agenda was approved.
Agenda Item 2: New PRAB Member Introduction and Election of Officers Valerie Yates and Jennifer Kovarik were introduced as newly appointed PRAB members. Each was administered the oath of office on March 31, 2015 by PRAB secretary Sally Dieterich. Guzek nominated Conroy for board chair. Gorce seconded the motion. There were no additional nominations. The motion passed 5-0 with Wyatt and Klenow absent. Gorce nominated Guzek for vice chair. Conroy seconded the motion. There were no additional nominations. The motion passed 5-0 with Wyatt and Klenow absent.
Agenda Item 3: Future Board Items and Tours <ul style="list-style-type: none">• 5/18 PRAB meeting – Greenways CIP for board comment• 5/18 PRAB meeting – Parks & Recreation Department fees• 5/18 PRAB meeting – Operating budget update• Community touches are listed on page 3 of agenda• Update on upcoming tours will be available in the months to come
Agenda Item 4: Public Participation <ol style="list-style-type: none">1. Charlotte Soreneon, resident, spoke of her belief that the Boulder Parks and Recreation will reaffirm its commitment to serve all members of the Boulder community with appropriate exercise facilities by ensuring availability of a warm water wellness pool for its “most vulnerable” population.2. Mary Hey, resident, spoke on the necessity of warm water pool therapy in Boulder. She said the message continues to be the same. Boulder needs a pool size warm water pool. She added that the Mapleton pool users group have provided a proposal to Parks and Recreation that they urge PRAB to consider.3. Elizabeth Burr, resident, spoke of her experience using Mapleton pool as part of her physical therapy for years. She said the warm water permits her to exercise when she otherwise could not. She supports continuation of a warm water therapy pool in Boulder.4. Colette Bruegel, non-resident, said she has used the Mapleton warm water therapy pool for years to help with back injuries and a degenerative condition of her spine. She also provided a hand out to PRAB detailing numerous warm water therapy pools operated by cities throughout the U.S. and Canada.5. Amy Howard, resident, began using the Mapleton warm water therapy pool after a life threatening accident. She said research shows that warm water therapy results in improvability and strength across all populations. She urged staff to consider a warm water pool as an element

in any parks and recreation strategy.

6. Nona Gandleman, resident, shared her history of being a tennis pro, backpacker, skier and hiker in Boulder since the early 1970's. All changed in 1999 with a ruptured disc and surgeries. She said she began using the Mapleton therapy pool a few years ago which changed her life. She added that she hopes there is a way to save this very important resource.
7. Els Slater, resident, said that all the open space around town is being bought by developers to build houses and just on that money it should be possible to keep the therapy pool open.
8. Dianne Curlette, resident, spoke on the Mapleton therapy pool. She said the Aquatics Feasibility Plan as written does not address all parts of the community, but instead has a narrow focus with emphasis on the lap swimmers. She said Boulder has a large number of people who need warm water therapy pool. She added that a few sentences have been added to the plan that acknowledges warm water needs, but the demographics are incorrect in her opinion as they include the CU population.
9. Bill Cohen, resident, explained that he used to play basketball, softball, skied, hiked and biked, but now can do none of those activities. He added his only exercise is in the warm water therapy pool at Mapleton. He said the user group has submitted a proposed resolution to staff with all information derived from the Aquatics Feasibility Plan. He added that the resolution asks staff to approach council expressing the need for a warm water therapy pool.

Agenda Item 5: Consent Agenda

- A. Approval of Minutes from March 23, 2015
Minutes from March 23, 2015 were approved as written.
- B. Parks and Recreation Development Update
- C. Parks and Recreation Operations Update

Agenda Item 6: Items for Action

There were no Items for Action.

Agenda Item 7: Items for Discussion/Information

There were no Items for Discussion/Information

Agenda Item 8: Matters from the Department

- A. Emerald Ash Borer Update (EAB)
City Forester Alexander provided this timeline update for 2015.
 - Emerald Ash Borer is an invasive pest
 - Came to the United States from China
 - EAB has killed 70,000,000 ash trees primarily in the Midwest
 - EAB detected in Boulder in fall 2013
 - Boulder County quarantine in place
 - 45,000 ash trees in City of Boulder
 - Ash trees not treated with pesticides will eventually die from EAB
 - EAB populations expand exponentially
 - Removal difficult due to fast spreading disease
 - Map provided to PRAB detailing EAB locations in Boulder
 - Treatment with pesticides is necessary with EAB response plan – goals are to slow the spread, preserve significant trees and to stage removals over a longer time period
 - Strict treatment criteria - ash trees must be in good health and less than 10” in diameter
 - Long term plan is to treat 25-30% of public ash trees in a three year rotation – approximately 450 trees per year
 - Goal is to reduce the numbers of trees treated every time there is a new rotation
- B. Aquatics Feasibility Plan Update

Rhodes provided this update which included plan goals, needs and recommendations. Goals were to establish a condition assessment of existing facilities, determine demand for aquatics facilities, and generate studies for aquatics facility development and management/cost estimations. The process included online survey, public open houses and workshops that were held in late 2014 and PRAB appointment of a liaison to be included in stakeholder meetings. The consultants analysis determined the following aquatics needs:

- An efficient, sustainable and green system
- Develop a pool allocation policy
- Increase open lap swimming
- Offer training facilities
- Offer competitive facilities
- Increase entertainment in pools – existing and new
- Increase warm water wellness opportunities

In response to increased interest in the City of Boulder providing warm water pool therapy alternatives, Rhodes spoke on warm water pool accessibility and how this need might be met in the community. She said the pool at the East Boulder Community Center is 90 degrees and currently offers more than ten classes per week for warm water fitness.

Bowden added that the Parks and Recreation Department Master Plan was specific in terms of the types of facilities that are considered public facilities that we should be managing and that they should be flexible spaces that do multiple things. She said that what staff has learned from the process is that temperature and depth do matter, which prevents other kinds of programming with the possibility of compromised flexibility. She assured all that the department is listening and doing all it can to continue to participate in the conversation, address the needs of the community and take care of what we have.

Agenda Item 9: Matters from Board Members

A. PRAB Member Appointment to the Greenways Advisory Committee (GAC)

PRAB member Klenow, who previously expressed interest in becoming the PRAB GAC representative, was not present at this meeting. Board chair Conroy deferred appointment, giving Klenow first right of refusal with the final decision and appointment to be made at the May 18, 2015 meeting.

Next Board Meeting: May 18, 2015

Adjourn: There being no further business to come before the board at this time; the meeting was adjourned at 8:16 p.m.

Approved by:

Mike Conroy
Board Chair

Date _____

Attested:

Sally Dieterich
Board Secretary

Date _____

**CITY OF BOULDER
BOULDER, COLORADO
BOARDS AND COMMISSIONS MEETING
MINUTES**

Name of Board/ Commission: Transportation Advisory Board	
Date of Meeting: 13 April 2015	
Contact Information Preparing Summary: Laurel Olsen-Horen 303.441.3203	
Board Members Present: Daniel Stellar, Dom Nozzi, Andria Bilich, Zane Selvans, Bill Rigler Board Members Absent: None	
Staff Present: Michael Gardner-Sweeney, Acting Director of Public Works for Transportation Kathleen Bracke, GO Boulder Manager Marni Ratzel, Sr. Transportation Planner David "DK" Kemp, Sr. Transportation Planner Laurel Olsen-Horen, Board Secretary	
Type of Meeting: Advisory/ Regular	
Agenda Item 1: Call to Order	[6:02 p.m.]
The meeting was called to order at 6:02 p.m.	
Agenda Item 2: Approval of minutes from 9 March 2015	[6:02 p.m.]
Motion to approve the meeting minutes from 9 March 2015 TAB meeting as presented: Motion by: Bilich, Seconded by: Nozzi	
Vote: 4:0 – board member Rigler abstained as he is a new board member and did attend the 9 March 2015 meeting	
Agenda Item 4: Public Participation	[6:05 p.m.]
<ul style="list-style-type: none"> • Sophia Cornell: The cycle track – it is a poor set up for both vehicles and cyclists. The road is too narrow. The parked vehicles must use part of the road to not take up the bike lane. As a cyclist, at cross streets, parked cars used to block the view – the city has since fixed that problem by removing parking. Now the lack of parking spaces is new problem. It's great the city is experimenting but this is not working. • Celeste Landry: Appreciates the B-360. Uses the cycle track daily. The track is icy in the winter to the point where some cyclists are using the roadway to bike in. The distance is too short – three blocks. This isn't a long enough length to get real data from. Given the issues seen this year, do not extend the pilot into next year. Staff needs to be out in the field to collect feedback. • Peter Richards: Opposes the cycle track. Offered a copy of the op-ed in the Camera and two maps of the area. Delivery trucks drive up the cycle track and park in the middle of it. The neighboring cycle track residents at the sorority are very mad with the current set up. Would like to go back to original set up. Please end this experiment. Vehicles pulling out of driveways need to pull out into the track. • Loren Pahlke: State of multi-use path system, mostly on the west side of 28th Street (photo handouts provided). Handout provided photos of areas around town where the MU path system could use improvement. Such as: <ul style="list-style-type: none"> ○ Make the MU paths straight and not swerve around signage in ROW. ○ Remove ill-placed bollards. ○ Align pedestrian striping and MU paths with the curb cut-outs. ○ Remove unnecessary obstacles from triangles in intersections. Mr. Pahlke would like to see the items listed in his handout taken care of. 	
Agenda Item 3: Swear in new Board Member	[6:02 p.m.]
TAB members approved moving this item to be Agenda Item 3 to allow the new board member the ability to participate in Agenda Item 4 – Public Comment.	
An oath was read aloud swearing in Board member Rigler to the Transportation Advisory Board.	
Agenda Item 5: Election of Board Officers	
Chair: Board member Nozzi nominates board member Selvans as chair of the TAB, seconded by: Bilich	
Vote: 5:0	
Vice-chair: Board member Stellar nominates board member Bilich as vice-chair of the TAB, seconded by: Nozzi	
Vote: 5:0	

Agenda Item 6: Staff briefing and TAB input regarding the 2016-2021 Transportation Capital Improvements Program (CIP) – Part I of III

[6:14 p.m.]

Mike Sweeney presented item to the board.

Executive Summary from Packet Materials:

Each year, the city goes through an annual budget process in which departments create a six-year Capital Improvement Program (this year for the time period of 2016 through 2021). The Transportation Advisory Board (TAB) role in this process is defined in the Boulder Revised Code (BRC) TITLE 2 GOVERNMENT ORGANIZATION, Chapter 3 Boards and Commissions, Section 14 - Transportation Advisory Board; “. . . to review all city transportation environmental assessments and capital improvements.” It is within this context that the board is asked to hold a public hearing and provide a recommendation on the Capital Improvement Program (CIP) to Planning Board and the City Council, scheduled for the June TAB meeting. This packet item is intended to initiate this process by providing:

- Background information;
- A tentative schedule; and,
- Key issues for this year.

Board discussion and comments included:

[6:30 p.m.]

- Staff will put together highlights of sites to visit for the TAB in regards to past and present. The TAB spring bike tour will focus on the future projects. Bike tour scheduled for: Monday, 27 April 15:00.
- Please provide the project fact sheets in the next go-around outlining what the project is, how the city is planning on implementing, what funds have already been spent, include any projects alternatives, etc.
- Posting photos to the city’s website may help bring more public involvement to this process.
- Include previous, current, and future spending. Does TAB ever receive actual spending information? It would be nice to know where there may have been any variances between budget and actual expenditures.
- Does staff feel the current transportation funding mechanisms are likely to scale up gracefully with additional development? Would having a funding source tied to other criteria than sales tax be preferable in order to serve a growing population?

Agenda Item 7: Staff briefing and TAB input regarding the 2015 Complete Streets “Living Lab” Phase II projects

[6:43 p.m.]

DK Kemp and Marni Ratzel presented item to the board.

Executive Summary from Packet Materials:

This item provides a status report, check in and opportunity for the Transportation Advisory Board (TAB) to provide input on the Complete Streets Living Laboratory Phase II program. At the April 13 TAB meeting staff will brief the Board on planning, technical analysis and proposed community engagement strategies in preparing to pilot corridor-based complete street repurposing (rightsizing) projects and request input on these elements in preparation for the TAB hosted Open House to be scheduled in May.

City Council feedback from the Feb. 24 study session supported an “enhanced and focused” approach for the Phase II Living Lab public process for piloting the right-sizing of candidate “Complete Street” corridors, including Iris, Folsom, 55th, and 63rd streets. Public input along with the technical analysis and financial considerations will guide a staff recommendation regarding the installation of potential pilot projects along these corridors in summer 2015.

Stakeholder meetings, social media and a TAB hosted public open house are a few of the communications plan elements being developed to gather public input on potential Phase II pilot projects.

Board discussion and comments included:

[6:53 p.m.]

- Would like more information on proactive communications plan – i.e. use of social media, press releases, offering one-on-ones with businesses, etc.
- Look into providing success stories from other communities. Is it possible the city could take TAB or elected officials to other communities to see for themselves how those communities have implemented such changes?
- Will there be temporary treatments prior to making them permanent?
- How were the corridors selected?
- 55th and 63rd are heavily weighted towards the vehicle; staff should be cognizant of business’ concerns.
- Selling of the corridor’s appearance will be vital for community buy-in. The community engagement project needs to have major emphasis on the beauty of this project, not so much on the technical.
- Bus stops, frequency and their impacts along these corridors would be helpful.
- How much longer car travel take will be an important question to answer from the get go.

- Why aren't these treatments being extended the full length of the street?
- Will staff receive the feedback they are looking for by implementing a living lab on 63rd which is vastly a vehicle culture?
- What support does staff need from TAB to get this program rolling?
- The city could solicit volunteers to help track down demographics and data of the various corridors.
- Make sure to stay on schedule so implementation does not coincide with the changing seasons.
- Is there a prioritization of the four projects?
- Staff needs to highlight "the why," not just "the what" and "the how."
- The city should consider getting the student population's feedback prior to summer break along with other targeted outreach along each corridor.
- Perhaps utilizing community members whom already have a foothold in the community ("Trusted Messengers") to assist with gathering information would be more beneficial than staff trying to do so.

Agenda Item 8: Matters

[7:59 p.m.]

A.) Matters from the Board Included:

Board member Selvans brought up the below matter(s)

- Comments from cycling community during Civic Area discussion – how can we provide a north-south corridor along 13th Street both during the Farmer's Market and non-special event times?
- Received a message from Sam Assefa requesting a member from TAB to participate on form-based code pilot for deployment in Boulder Junction. Board member Selvans will represent TAB on the FBC pilot committee.

Board member Bilich brought up the below matter(s)

- Continue the practice of being well versed on packet materials so more time can be spent on comments.

B.) Matters from staff/Non Agenda:

[7:35 p.m.]

- RTD proposed US 36 BRT service plan and fare study update:
 - Success of opening day will be vital to the public perception of the program.
- Council update; Development related impact study update:
 - Council asked staff to change the scope to include O & M not just capital costs.
- Other Matters:
 - AMPS open house 29 April 5:30-7:30 at the main library.

Agenda Item 7: Future Schedule Discussion:

[8:05 p.m.]

None

Agenda Item 8: Adjournment

[8:05 p.m.]

There being no further business to come before the board at this time, by motion regularly adopted, the meeting was adjourned at 8:05 p.m.

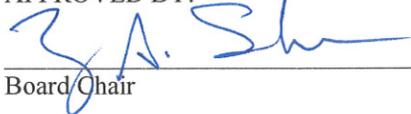
Motion: moved to adjourn; Stellar, seconded by: Bilich

Motion passes 5:0

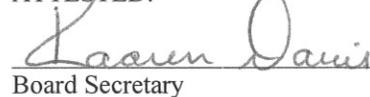
Date, Time, and Location of Next Meeting:

The next meeting will be a regular meeting on Monday, 11 May 2015 in the Council Chambers, 2nd floor of the Municipal Building, at 6 p.m.; unless otherwise decided by staff and the Board.

APPROVED BY:


Board Chair

ATTESTED:


Board Secretary

5/11/2015
Date

5/11/2015
Date

An audio recording of the full meeting for which these minutes are a summary is available on the Transportation Advisory Board web page.

CITY OF BOULDER, COLORADO
BOARDS AND COMMISSIONS MEETING MINUTES

Name of Board / Commission: Water Resources Advisory Board	
Date of Meeting: 23 February 2015	
Contact Information of Person Preparing Minutes: Andrea Flanagan 303.413.7372	
Board Members Present: Vicki Scharnhorst, Mark Squillace, Dan Johnson, Lesley Smith, Ed Clancy Board Members Absent: None	
Staff Present: Jeff Arthur, Director of Public Works for Utilities Bob Harberg, Principal Engineer-Utilities Annie Nobel, Flood and Greenways Engineering Program Coordinator Bret Linenfelser, Water Quality and Environmental Services Manager Kurt Bauer, Engineering Project Manager Russ Sands, Watershed Sustainability and Outreach Supervisor MaryAnn Nason, Water Conservation Outreach Coordinator Heidi Hansen, Floodplain and Wetlands Administrator/ Civil Engineer Edward Stafford, Development Review Manager Andrea Flanagan, Board Secretary	
Cooperating Agencies Present: Monica Bortolini, Consultant with Leonard Rice Engineers, Inc.	
Meeting Type: Regular	
Agenda Item 1 – Call to Order	[7:05 p.m.]
Agenda Item 2 – Approval of the 26 January 2015 Meeting Minutes: [7:06 p.m.] Motion to approve minutes as amended from January 26 as presented. Moved by: Johnson; Seconded by: Squillace Vote: 4:0 (Ed Clancy abstaining)	
Agenda Item 3 – Public Participation and Comment	[7:10 p.m.]
Public Comment:	
Patrick McAteer Chief Financial Officer at Frasier Meadows Retirement Community. Campus severely impacted by 2013 floods, lost about 40% of operating capacity, only half-way returned to normalcy. Requesting advocacy for Frasier Meadows, which is in its 55 th year assisting seniors in Boulder. Lost entire bottom level of skilled nursing and entire assisted living wing, and much more infrastructure, including independent living structures, approximately \$7.5 to 10 million in loss. Here for long-term needs for seniors in Boulder community. They are coming out of the flood and recreating what the organization will provide in the long run. Would appreciate continued advocacy of the Board.	
Chuck Howe Emphasized how severe the effects of the flood were on Frasier Meadows and is here to ask Board to promote maximum flood control off Highway 36 and any other alternatives. Qualla Drive area was badly impacted with 100 damaged homes, as well as Frasier Meadows. On the basis of FEMA’s first ruling, Frasier Meadows would be out of the floodplain if they built a retaining wall around its campus. FEMA recently reversed their decision, saying that they would still fall in the floodplain due to two structures being out of compliance with construction regulations. All residents would then be subject to flood insurance, with current rates quoted, causing a tremendous impact to residents. Feels that adequate storage around Hwy. 36 would protect the Qualla Drive area and would give grounds for appealing FEMA ruling, which has severe implications for Frasier. Hopes Board will consider the alternative, which would provide a legitimate argument to FEMA to have them reconsider their decision. Final recommendation is to consider other alternatives on the other side of Highway 36.	
Tom LeMire President HOA of 100-unit, 5 building complex, which is about 15 years old, north of Frasier Meadows Manner. As with Frasier, their building was under water during flood, small fraction of loss compared to what Frasier endured. \$42,000 worth of electrical damage to meters, with biggest issue being with settlement with insurance company. In their 80-page umbrella insurance document, they didn’t see exemption that insurance company found, which stated that they should not be covered for upgrading electric meters even though City of Boulder says that meters should be upgraded, per the 2011 code. The	

insurance company does not cover upgrading, which is a catch-22.

There were so much mechanical repairs and now years of frustrating efforts that require very expensive insurance policy. Experienced 3 feet of water that probably came from Bear Creek/ NCAR area. Asks that Board please work with CU to open South Campus for natural retention in large low-lying areas around CU.

Rick Mahan

Member South Boulder Creek Action Group. Wants to reemphasize that the group's main priority is to stop the overtopping of US36 during floods.

Agenda Item 4 - Matters From Staff: [7:21 p.m.]

- a) Update on South Boulder Creek Mitigation Study
- b) Update on National Flood Insurance Program – Community Rating System
- c) 2015 Flood Outreach Program
- d) Water Conservation Program

Agenda Item 5 – Matters from the Board: [8:55 p.m.]

Board Member Smith brought up the below matter(s):

- Attended Watershed Forum, which was fantastic and thought-provoking.
- Feels that the more our public can be educated about water use and average per-capita consumption, and the more information people have, the more they may realize that it is a critical resource.

Board Member Johnson brought up the below matter(s):

- Thanked Board Secretary for receiving the meeting packet in one succinct package this month, as opposed to separate documents and attachments.
- Stated that he will miss April meeting and questioned whether date could be changed?
- Questioned status of snowpack in the watershed?

Board Member Clancy brought up the below matter(s):

- Questioned whether the city's water supply lines' range of leakage falls between 7% and 14%.
- Discussed email that was sent to Board about study regarding "submarines" that were sent through collection systems and that it would be nice to see this subject revisited by city staff.
- Questioned if we are going to be doubling our existing collection system rehabilitation efforts.
- Questions about flow meters that were put in sewage lines and what current infiltration rate is?
- Questioned if Frasier Meadows is an area that would be metered to determine flows?
- Questioned conditioning monitors and the status of the "big pipes" in the city's sewer mains.
- Questioned if the problem with Casey Middle School is related to sewer main issues?

Agenda Item 6 – Future Schedule [9:05 p.m.]

Several board members expressed interest in rescheduling future meetings due to conflicts. Staff will follow up.

Adjournment [9:07 p.m.]

There being no further business to come before the Board at this time, by motion regularly adopted, the meeting was adjourned at 9:07 p.m.

Motion to adjourn by: Johnson; **Seconded by:** Squillace

Motion Passes 5:0

Date, Time, and Location of Next Meeting:

The next WRAB meeting will be **Monday, 16 March 2015 at 7:00 p.m.**, at the **City's Municipal Services Center, 5050 Pearl St., Boulder, CO 80301**

APPROVED BY:

Board Chair

Date

ATTESTED BY:

Board Secretary

Date

An audio recording of the full meeting for which these minutes are a summary, is available on the Water Resources Advisory Board web page.

<https://bouldercolorado.gov/boards-commissions/water-resources-advisory-board-next-meeting-agenda-and-packet>

**CITY OF BOULDER, COLORADO
BOARDS AND COMMISSIONS MEETING MINUTES**

Name of Board / Commission: Water Resources Advisory Board	
Date of Meeting: 16 March 2015	
Contact Information of Person Preparing Minutes: Andrea Flanagan 303.413.7372	
Board Members Present: Vicki Scharnhorst, Mark Squillace, Dan Johnson, Lesley Smith, Ed Clancy Board Members Absent: None	
Staff Present: Jeff Arthur, Director of Public Works for Utilities Bob Harberg, Principal Engineer-Utilities Annie Nobel, Flood and Greenways Engineering Program Coordinator Bret Linenfelter, Water Quality and Environmental Services Manager Kurt Bauer, Engineering Project Manager Kristin Dean, Utilities Planner Christin Shepherd, Civil Engineer Andrea Flanagan, Board Secretary	
Cooperating Agencies Present: Craig Jacobson, Consultant with ICON Engineering, Inc. Brian Ledoux, Consultant with ICON Engineering, Inc. Shea Thomas, Urban Drainage and Flood Control District	
Meeting Type: Regular	
Agenda Item 1 – Call to Order	[7:00 p.m.]
Agenda Item 2 – Approval of the 23 February 2015 Meeting Minutes: Motion to approve minutes as amended from February 23 as presented. Moved by: Squillace; Seconded by: Johnson Vote: 5:0	[7:01 p.m.]
Agenda Item 3 – Public Participation and Comment	[7:05 p.m.]
Public Comment:	
Carl Norby Resident of Frasier Meadows. Provided a letter to board secretary that he read aloud to the Board. August 28 th , 2014 the supervisor for C&L to install the last section of sewer line for Frasier Meadows lining project. Carl showed the inspector the ground water level line, which is 22 inches below the basement floor in his home. The inspector said he would replace the line but not cure it until he was certain that the basement would not flood. The pump was turned on and working every few minutes in order to maintain the 17 inch water level The ground water level has been stable for the past 40 years. He has experienced minimal moisture in the basement area since flood event. It was recently discovered that groundwater is leaking into the base of a nearby manhole due to the increased groundwater levels, causing the water level to rise another five inches. One week ago neighbor's basement flooded, water entered between wall and floor. Seems logical for something like this to happen again. He requests that a Hydrologist evaluate the groundwater in the Frasier Meadows area.	
Fleet White Basement flooded a week ago. No question in his mind based on behavior of sump pump that ground water has risen significantly since last summer. Likely cause is lining of neighborhood's sanitary sewer system. He attributes rise in groundwater to this. With recent rapid melt of heavy snow, they had dramatic rise in groundwater, as clearly indicated by operation of sump pump. His understanding is that there was no analysis or study on what the hydrological impact would be in the area with the lining of the sanitary sewer. Suggests that the city look into this issue further. Lining the sewer to the homes will likely will have further impact on level of ground water. Requests city give consideration to this impact. He has a deep basement and it's likely they will experience flooding again in the future.	
Rick Mahan Representing South Boulder Creek Action Group Would like to thank board members who have seen the group's presentation. Primary goal is to prevent issues to the health and public safety to residents with regard to US36. Extends invitation to board members to view group's presentation that discusses the overtopping in 2013 at US36 and addresses health and public safety concerns. The presentation's primary goal is to prevent this from happening again in the	

Public Hearing and Consideration of a Recommendation to City Council regarding the Upper Goose Creek and Twomile Canyon Creek Floodplain Mapping Update

Kurt Bauer and Utilities staff presented the item to the board.

Executive Summary from the Packet Materials:

The purpose of this memorandum is to provide a brief summary of the history and revised results of the Upper Goose Creek and Twomile Canyon Creek floodplain remapping study and request a motion from the WRAB to recommend to City Council to adopt the mapping. The study includes the area located west of Folsom Street to the city limits as shown by the blue areas in the figure below:



The Upper Goose Creek and Twomile Canyon Creek floodplain mapping update began in 2011. The initial draft revised mapping was presented to WRAB in May 2013. Based on a WRAB recommendation, the mapping was remodeled using the new city LiDAR topographic mapping information and presented to WRAB on November 17, 2014. The maps have been further revisited and revised to address issues raised by the public and the WRAB including changes to the High Hazard Zone, Conveyance Zone and limited changes to the 100-year floodplain. As a result of these changes, no structures would be located in the revised draft High Hazard Zone, 13 structures would no longer be added to the Conveyance Zone and 15 structures would no longer be added to the 100-year floodplain. The proposed Upper Goose Creek and Twomile Canyon Creek floodplain mapping would result in a net:

- Decrease of 130 structures identified in the 100-year floodplain;
- Decrease of 97 structures identified in the Conveyance Zone and;
- Decrease of 64 structures identified in the High Hazard Zone.

The WRAB review of the floodplain mapping update does not require board members to verify the analysis and calculations, but accepts the overall mapping study process and that results are reasonable and acceptable. The WRAB is being asked to make a recommendation to City Council on whether to adopt the mapping update and forward it for consideration by FEMA.

WRAB Discussion Included:

- Commented that staff has listened well to residents' questions, which is appreciated.
- Requested further clarification on "roughness coefficient" and how they were developed.
- Questioned if GIS and standard approaches were used to make selections without doing onsite mapping. Asked whether or not fences are mapped.
- Commented that surprised that the models were one-dimensional and asked if that is the recommended approach to mapping for regulatory purposes.
- Curious about changes with Crestview and Foothills Elementary School and what that means for the school with regard to expansion.
- Reminded audience that the 2013 flood event was a very different scenario then what is being mapped in the current study.
- Questioned related to policy updates that would include the new technology and modeling and what that would look like.
- Questioned whether the model includes the berm in front of Foothills and Crestview Elementary

Schools.

- Questioned whether additional input was received from other firms and incorporated into the study.
- Requested clarification on changes to the high hazard zone with regard to Blue Bell and Gregory Canyon models and if they were in fact 1-D models? Questioned if it is likely for a 2-D model to be requested as well.
- Commends staff and feels that the continuous discussions about Twomile Creek mapping has been productive and staff has been very responsive throughout this process. These discussions have put us in a much better place to make better informed decisions regarding these important changes.
- Questioned how the city should proceed with providing information about flood risk, even if they are no longer in the floodplain
- Question about Urban Drainage and if other agencies have experience using the 1-D vs. 2-D modeling. Recommends reporting this feedback to FEMA on other agencies' responses.
- Question about suggestion by audience member about adding sidewalks on Juniper, Kalmia and Linden Ave. and about the possibility of using streets as conveyances? Requests also doing this on Evergreen, if so.
- Stated that there are multiple ways that residents can collaborate with staff regarding the process of tweaking individual site parcels.

Public Comment:

Len Berg

Has been following procedures over the past 2 years. Property is not in new flood zone. Impact financially is significant. Has spent \$17,400 on flood insurance over the past 14 years. Considering the scientific research that has been conducted, he implores the Board to get this approved and on to Council so he can move on. He is interested in updating his 16-year old house, but he is experiencing restrictions as to what he can do to update it due to this designation.

Jonathan Hager

Is part of the 275 residents who are being removed from the floodplain mapping. Excited because there is light at the end of the tunnel. His employer uses LiDAR mapping on transmission lines, which is incredibly accurate and cutting edge. He feels intuitively that his home is not in the floodplain and feels it would be unfair to pay flood insurance, so he appreciates Board taking burden off of these 275 residents.

Kirk R. Vincent, PhD

Has experience as hazard geologist and hydrologist. States that the Two-mile Creek area, west of Broadway, between Linden and past Juniper is unique area in town and most resembles an un-urbanized state because it does not have any sidewalks or culverts. Uncertainty in knowing where floodwaters will actually go. The results could most resemble terrible flood of 1909, as well as in 2013. Floodwaters took up a much larger area than what was depicted on the map. Objection is that the section of the acting channel between Kalmia and Broadway is being excluded from the floodplain. Feels that this would be a nationally unprecedented policy change. Encourages the city to designate Linden, Kalmia and Juniper to be the flood overflow channel and shunt the water to Broadway, rather than letting floodwater flow through people's back yards and homes.

Peter Mayer

Spoke to Board in November. Home was touched by water in 2013 and then removed from high hazard zone in the reanalysis. Feels this is a much more fair assessment and is very grateful for the revision. Feels that there is still a discrepancy with what he observed in 2013 from what was mapped. Did research on 1-dimensional modeling versus 2-dimensional and urges city to utilize both models. Does not feel there are fatal flaws and does not feel this is ever going to be a perfect process.

John Gerstle

Has had a variety interactions with staff with regard to this process. House remained completely dry during the flood. Was interested to find out how their home would be classified in the revised modeling. Staff visited in February and maps were provided showing the status of his house in relationship to the floodplain and conveyance zone. He was pleased with the findings, but then in March, they were told that the status

had changed and that his home was now in the floodplain again. Not enough time to act, as he was out of town. Feels it would be premature to adopt these plans now without the ability for those affected to have more interaction with staff about these revisions. Requests the option be considered for these residents to have more time.

Steve Silberman

Feels the revised maps are fantastic and his home is now being removed from high hazard and conveyance zones. Residents have not had a chance to talk about the event with each other. Debris blocked easement during the flood. Residents dug channel so water could drain, which it did once cleared. Water then drained within hours. Concerned that conveyance drawn for Alpine is too broad on these maps. It is in the city's best interest to look at the grading in this area and take this into consideration.

Tim Martin

Lives behind Columbine Elementary. Received letters in 2013 that their home fell in flood zone. Did not observe flooding in the areas of 19th, Floral and 20th during the 2013 event. Based on his experience, his home is not in the flood zone. Thanks the Board for volunteering for this effort. It is important that people know accurately whether or not they fall in the flood zone. Read comments on previous minutes and questions whether or not those comments have been addressed. The majority of the people affected want to move forward. Concerned that FEMA may take up to 3 years to approve this data. Recommends moving it forward quickly. Heart goes out to residents whose homes are now in the flood zone.

Luciano Mazzaro

Was in the 100-year floodplain. Thanks everyone for being honest, as it is very important to say where we were before and where we are now. As an engineer, he knows that this simulation is just a model that will never be perfect. Has no hesitation that a 2-D model would be better than a 1-dimensional model. States that residents should feel good that this process has happened. This is about safety and he appreciates all that the Board has done throughout this process.

Patrick Cameron

Thanks Board and Kurt for their efforts. Deck was originally mapped in high hazard zone. Resident feedback was very helpful to help mitigate issues on property. The recent decision to remove the deck from the high hazard zone makes sense and is impactful.

Julia Hicks

Huge amount of repairs were done to home due to flood damage. Experienced massive river in backyard and in street, which is partially due to high grade of backyard. Home is now out of flood zone, which makes them happy they don't have to pay flood insurance, but may be something to consider that their home actually did flood during this event.

Jane Monson

Home was in high hazard zone in the 2014 zoning map. Received notice right before Christmas that they were removed from the high hazard zone as a result of models not correlating. Would like to remind the Board that Wright Water did a study after the flood event and even though this was close-to a 100-year flood, their home experienced nothing close to what would be a high hazard experience on their property. Very happy to hear that high hazard was taken off property and urges Board to approve this motion.

Motion by: Johnson; **Seconded:** Squillace

Vote: 5:0, Motion Passes

Motion to recommend that City Council adopt the Upper Goose Creek and Twomile Canyon Creek floodplain mapping update.

Agenda Item 6 – Matters from Staff:

[8:48 p.m.]

- March 17, Council will hold elections for newly appointed WRAB member.
- Bob Harberg has agreed to take on temporary position with Boulder's Energy Future project.
- Douglas Sullivan will become Acting Principal Engineer for Water, Wastewater, and Stormwater and Annie Noble will become Acting Principal Engineer for Flood and Greenways, splitting Bob's previous duties.
- Discussion on future scheduled WRAB meetings and upcoming availability.

<ul style="list-style-type: none"> Eric Ameigh approached board about public engagement process and requested feedback from Board about memos that were sent in February. Two open house events will be scheduled, with the intention of gathering feedback from the public about their utility bills, as well as other general feedback. An additional opportunity for obtaining feedback online for residents who cannot attend open houses will be provided. 	
<p>Agenda Item 7 – Future Schedule [9:18 p.m.]</p> <ul style="list-style-type: none"> Due to a high volume of information items projected for the next couple of months, some items will be presented only as memos and questions will be discussed under matters. <p>April:</p> <ul style="list-style-type: none"> Annual drought status and water supply update will be presented in the form of a memo Presentation on Capital Improvements Overview Board recommendation on Gregory Creek Mitigation Bear Creek Mitigation will be presented in the form of a memo April will be first meeting for new board member Board will be contacted to determine if a quorum will be met for forthcoming spring and summer meetings, otherwise may need to reschedule meetings. 	
<p>Adjournment [9:22 p.m.]</p> <p>There being no further business to come before the Board at this time, by motion regularly adopted, the meeting was adjourned at 9:22 p.m.</p> <p>Motion to adjourn by: Squillace; Seconded by: Smith</p> <p>Motion Passes 5:0</p>	
<p>Date, Time, and Location of Next Meeting:</p> <p>The next WRAB meeting will be Monday, 27 April 2015 at 7:00 p.m., at the City's Municipal Services Center, 5050 Pearl St., Boulder, CO 80301</p>	

APPROVED BY:

Board Chair

Date

ATTESTED BY:

Board Secretary

Date

An audio recording of the full meeting for which these minutes are a summary, is available on the Water Resources Advisory Board web page.

<https://bouldercolorado.gov/boards-commissions/water-resources-advisory-board-next-meeting-agenda-and-packet>