Pershing Boulevard Complete Streets

Final Plan

Prepared by

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Prepared for
Cheyenne Metropolitan Planning Organization

September 2015

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Table of Contents

Appendices

EXECUTIVE SUMMARY

INTRODUCTION

The Pershing Boulevard Complete Streets Plan focuses on improvements to multimodal access and safety along Pershing Boulevard between Evans Avenue and Logan Avenue in Cheyenne, Wyoming. The plan identifies needs and prioritizes improvements to make it easier, safer and more appealing to walk and bike within and through the corridor.

The City of Cheyenne partnered with the Cheyenne Metropolitan Planning Organization (MPO) to engage residents, key stakeholders and partner agencies through a comprehensive Public Outreach. The outreach included handing out informational flyers along the corridor, individual business interviews, a walking audit of the corridor, a project website, two community outreach workshops, and presentations to the MPO Technical Committee. The public outreach component of this project helped identify the qualitative issues as experienced by local business owners and users of Pershing Boulevard.

EXISTING CONDITIONS ASSESSMENT

The vehicular Level of Service analysis indicates that the intersections along the corridor are operating without significant delay. Pedestrians and bicyclists traveling within and along Pershing Boulevard face significant challenges. Volumes of bicycles and pedestrians are relatively low along this corridor. This does not necessarily reflect a low demand by these modes, but rather insufficient infrastructure to create a comfortable and safe environment for people to walk or bicycle along Pershing. Particular issues for bicyclists and pedestrians include:

- Poor sidewalk quality
- ADA accessibility
- Lack of Access management
- Lack of pedestrian crossing opportunities
- Misaligned intersections
- Insufficient lighting, particularly pedestrian-scale
- Lack of street furniture
- Narrow and attached sidewalks
- Sidewalk slope exceeds 2% at driveways, making it difficult for mobility impaired users to navigate

CORRIDOR IMPROVEMENTS

Potential Opportunities

Based on results from the existing conditions analysis, walking audit, business interviews, project website, and community outreach, a number of baseline corridor improvements were identified to address basic pedestrian and bicycle safety and mobility in the corridor, and were considered in the development of all concept alternatives:

- Implement street furniture and additional pedestrian-scale lighting
- Widen sidewalks and add a landscaped buffer wherever feasible
- Jog the sidewalk back from the street at driveways in order to keep the sidewalk and driveway at grade and avoid the cross-slope
- When a diagonal curb ramp is used, provide 48 inches for users to maneuver into the crosswalk
- Line up intersections to create standard four-leg intersections for simpler crossings
- Consolidate access points whenever possible
- Add additional marked crossings with pedestrian refuge medians
- Restrict parking on side streets to begin 20′ downstream of Pershing Boulevard for better sight line for turning and crossing vehicles
- Adjust pedestrian crossing time to allow for crossing speeds of 3.5 feet per second and provide pedestrian countdown signal indications.
- Study redevelopment opportunities throughout the corridor.

Initial Concept Plans

Three alternative cross-sections were developed to accommodate a variety of approaches to integrate pedestrian facilities and bike facilities in some manner.

- **Option A** maintains existing curbs integrates a 4′ bike lane on either side of the road with a 1′ stripe and reduces travel lanes to 10′ – 6″ while incorporating a 10′ median/center turn lane. 5′ attached walks on either side of the road are maintained.
- **Option B** maintains existing curbs, integrates a 9′-6″ attached multi-use path for pedestrians and bikes and maintains existing travel lane widths. A planted median/center turn lane is incorporated into the cross-section.

- **Option C** integrates an 8′ detached multi-use path with a planted parkway/tree-lawn adjacent to the road. 10′-6″ travel lanes are incorporated with a 10′ planted median/center turn lane. This alternative modifies the existing curb line and extends it in to the existing street cross section to incorporate the detached multi-use walk.

Preferred Concept Plan

The three options were evaluated in a workshop with City Staff and at the first public workshop. It was determined that the roadway width from curb to curb should remain as it is in the current existing condition. On-street bike lanes were seen as a less feasible means of integrating bike facilities, and it was determined that a multi-use pedestrian/bike path in a detached condition that integrates some street trees is most desirable.

It was further determined that the ultimate preferred cross-section should be phased for project implementation based on priority as informed through public workshops and general pedestrian safety needs along the corridor.

Phase I – Pedestrian Safety – integration of a pedestrian crossing at Duff Avenue.

Phase II – Commercial Core – Airport Parkway to Dunn Ave.

Phase III – Commercial Core – Dunn Ave. to Logan Ave.

Phase IV – Multi-Use Path/Planted Medians – Evans Ave. to Airport Parkway

IMPLEMENTATION

The costs of implementing and maintaining these longer term improvements identified by the participating members of the community can often be expensive and burdensome to municipalities. As a result, this study breaks out these potential future improvements into phases which can be implemented through a variety of creative public and private funding sources in the future. The intent is however to have a plan or a road map for this area so that if and when funding opportunities arise, the City and community leaders have a vision and corresponding design ideas that they can utilize to move forward.

INTRODUCTION

Pershing Boulevard is a key commercial corridor in the heart of Cheyenne, serving residents and visitors of a range of ages and abilities. This corridor serves Miller Elementary School, Carey Junior High School, a number of small businesses, residential neighborhoods, a 12-screen movie theater, Gold's Gym, the Wyoming State Bank, three city cemeteries, and the Cheyenne Workforce Center. Pershing is also an important transportation connection in Cheyenne, as it is one of the few uninterrupted east-west corridors in the city.

The need for this plan became evident following concerns expressed by the neighboring businesses, general public and individuals with disabilities who frequently cross the intersection of Pershing Boulevard and Duff Avenue. In response to the concerns, the City of Cheyenne and the Cheyenne Metropolitan Planning Organization (MPO) recognized a need to explore Complete Streets options along this section of Pershing Boulevard to make it easier, safer and more appealing to walk and bike.

Complete Streets are designed and operated to enable safe access for all users, including people of all ages and abilities on foot, bikes, cars, and buses. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. Complete Streets essentially define the *character* of a street. A successful streetscape helps to create an inviting environment, encourage economic development, stimulate private sector investment and enhance the existing positive features. Each streetscape is unique and there is no one-size-fits-all description, but ingredients that may be found in a complete streetscape include sidewalks, bike lanes, parking lanes, crosswalks, pedestrian lighting and signals, and traffic calming measures such as curb extensions and medians. Everything that is found in the space between buildings on each side of the street can be considered part of the streetscape realm.

This report documents the review of existing and proposed plans for the Pershing corridor, existing conditions of the study area, bicycle and pedestrian issues, as well potential opportunities.

LITERATURE REVIEW

The Pershing Boulevard Complete Streets Plan began with a review of Cheyenne's existing plans and studies. The reviewed plans date back to 2009 so some of the improvements identified in the summaries have already been implemented. A summary of each of the plans is below.

1) East Pershing Boulevard Corridor and Intersections Plan (July 2009)

This study looks at East Pershing Boulevard from Dunn Avenue to Converse Avenue and considered intersection improvements on this section of Pershing. At the intersection of Pershing Boulevard and Concord Road/ Logan Avenue, the study proposed to realign the intersection to a standard four-leg design. This will require acquiring right of way and razing a portion of the school building at the northeast corner. "This improvement is expected to improve traffic flow, safety, reduce traffic queuing and enhance pedestrian crossing of the intersection." There were also some mixed use redevelopment concepts for the northwest side of this intersection which included buildings that faced the street with parking behind.

2) Intersection Safety Assessment (2010)

This analysis included a ranking of intersections in Cheyenne based on their Potential Crash Reduction Score—the intersection's susceptibility to cost-effective safety improvements. Only one intersection in this study area was ranked in the top 36. That intersection is Pershing and Logan. It ranked 14th.

3) Cheyenne Metropolitan Area Safe Routes to School (August 2010)

This study explored safe routes to school for schools within the Laramie County School District #1. Schools within the Pershing Boulevard Complete Streets study area include Carey Junior High and Miller Elementary School, located at Pershing Boulevard and Concord Road and Pershing Boulevard and Evans Avenue, respectively.

Carey Junior High- As a large arterial with fast-moving traffic, Pershing Boulevard provides a challenging barrier for students. Students frequently need to travel on or across Pershing Boulevard to access activities after school, largely located to the east. Because of the few signalized crossing options, students often cross at uncontrolled locations, which create potential conflicts.

Miller Elementary School- Since the school is adjacent to Pershing Boulevard, students traveling from the southeast face a challenging crossing. It should be noted that Miller Elementary School's boundaries only extend east to Seymour and only as far south as 23rd, limiting the number of students potentially trying to

cross from the southeast. School advance warning signs currently exist on Pershing Boulevard in the vicinity of Miller Elementary School.

4) Cheyenne Metropolitan Area Pedestrian Plan (August 2010)

This existing conditions component of the plan listed Pershing Boulevard as a barrier to pedestrians created by a major roadway and noted that the curb ramps are in poor condition. No specific recommendations were made in this plan to Pershing Boulevard within the Complete Streets study area.

5) Cheyenne Area On-Street Bicycle Plan and Greenway Plan Update (June 2012)

The Cheyenne Bicycle Plan proposes a greenway along Pershing Boulevard for the .75 miles from Dunn Avenue to Converse Avenue and from Evans Avenue to the Airport Parkway. Many of these sections have been built; specifically the section between Rayor and Converse is completed.

DATA COLLECTION

In addition to reviewing the relevant documents cited above and initial existing conditions, the team compiled and analyzed the following quantitative, qualitative, and spatial data:

- Roadway network
- Peak Hour vehicular, bicycle, and pedestrian volumes
- Pedestrian and bicycle facilities
- Transit facilities and service

STUDY AREA

This study area encompasses Pershing Boulevard from Evans Avenue on the west to Logan Avenue on the east, with a deeper look at the two blocks between Duff Avenue and Dunn Avenue. The Pershing Boulevard Corridor can be seen as three distinct character areas between Evans Ave. and Logan Ave. The western portion of the corridor is influenced by the intersection of Evans Ave. and Pershing Blvd. from Evans Ave. to Seymour Ave. Land Use in this area is primarily institutional with Wyoming National Guard and Laramie County School District Parcels occupying approximately 50% of the adjacent parcels, with two additional commercial parcels and residential parcels on the south side of Pershing Blvd.

The Lake View Cemetery on the south side of Pershing and the Mt. Olivet and Beth El cemeteries on the north are the only influencing land use from Seymour Ave. to Morrie Ave. /Airport Parkway with a park-like character and open space fronting Pershing Blvd. here. The eastern portion of Pershing Blvd. descends a significant grade in this location and transitions to a Commercial zone at Airport Parkway.

The area from Airport Parkway to Logan Ave. is primarily commercial/retail in nature with multiple access points fronting Pershing Blvd. Most parcels have parking fronting Pershing Blvd. A number of residential parcels also front the corridor through this area as well. Streets along the south portion of the corridor are oriented northwest/southeast and southwest/northeast in a grid pattern. Street intersections along the south of the corridor are misaligned to the north and enter at an angle, creating visibility issues for turning movements.

EXISTING FACILITIES

Pershing Boulevard is a five-lane arterial, with two travel lanes in each direction and a two-way center turn lane for the majority of the study area, except at the approach to signalized intersections. The speed limit along the corridor through the study area is 35 miles per hour. The majority of intersections in the study area along Pershing Boulevard are two-way stop-controlled, except for the intersections serving as the

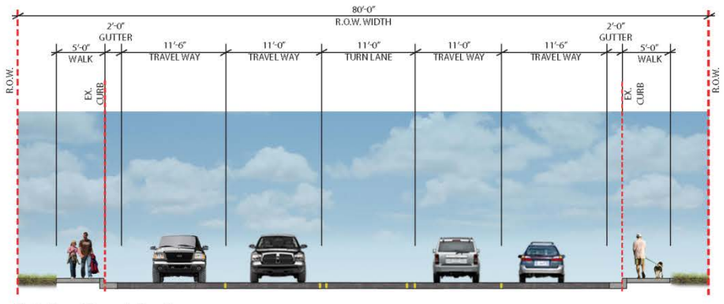
east and west study boundary, Evans Avenue and Logan Avenue, and Morrie Avenue/ Airport Parkway and Concord Road, which are signalized.

Pershing Boulevard has attached sidewalks along the entire length of the study area. Sidewalks range in width from 3.5 feet to 12 feet. The only marked crosswalks in the study area are at signalized intersections—Evans Avenue, Morrie Avenue/ Airport Parkway, Concord Road and Logan Avenue. The corridor does not have any bicycle facilities.

Right - of - Way

The existing Right of Way throughout this portion of the corridor is typically 80′ in width with some variation ranging from 80′ to 95′ on the west end of the corridor and 84′ from Alexander Ave. to Logan Ave. on the east end of the corridor. The existing street cross section throughout the corridor typically has a 5′ walk on either side, 2′ curb and gutter on either side, 11′-6″ outer travel lanes, 11′ inner travel lanes and an 11′ striped turn lane throughout. There is typically an additional 8-10′ of Right – of – Way remaining beyond what is utilized for existing facilities.

The existing cross section, right-of-way, and parcel information is shown on the following figures.



Existing Street Section

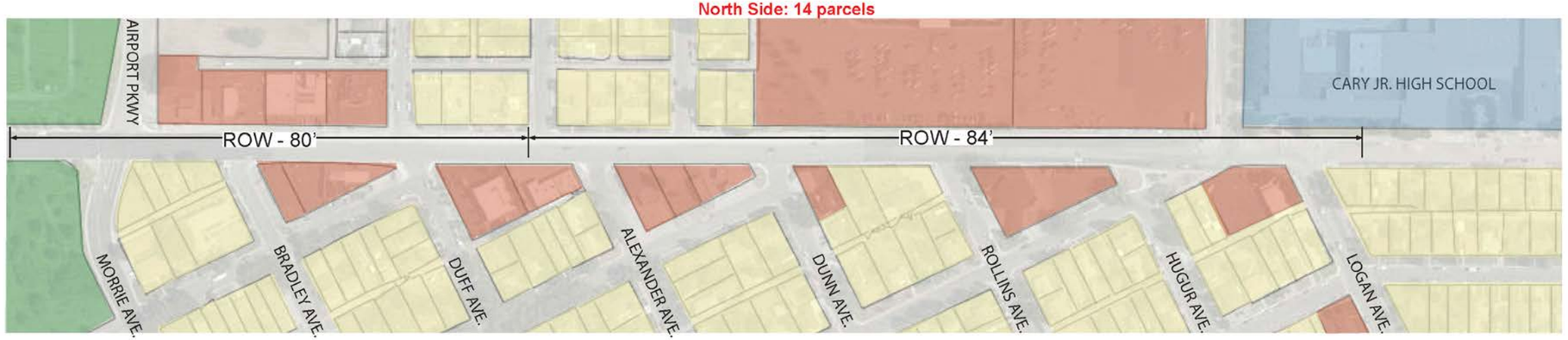
Pershing Boulevard Complete Streets

Existing Conditions

North Side: 6 parcels

South Side: 10 parcels

North Side: 14 parcels



South Side: 14 parcels

*Existing Right-of-Way widths estimated from as-built drawings

TOTAL NUMBER OF PARCELS:
North Side: 20 parcels
South Side: 24 parcels

LEGEND:

- Residential
- Commercial/Mixed Use
- Cemetery
- Municipal/City
- State/Federal

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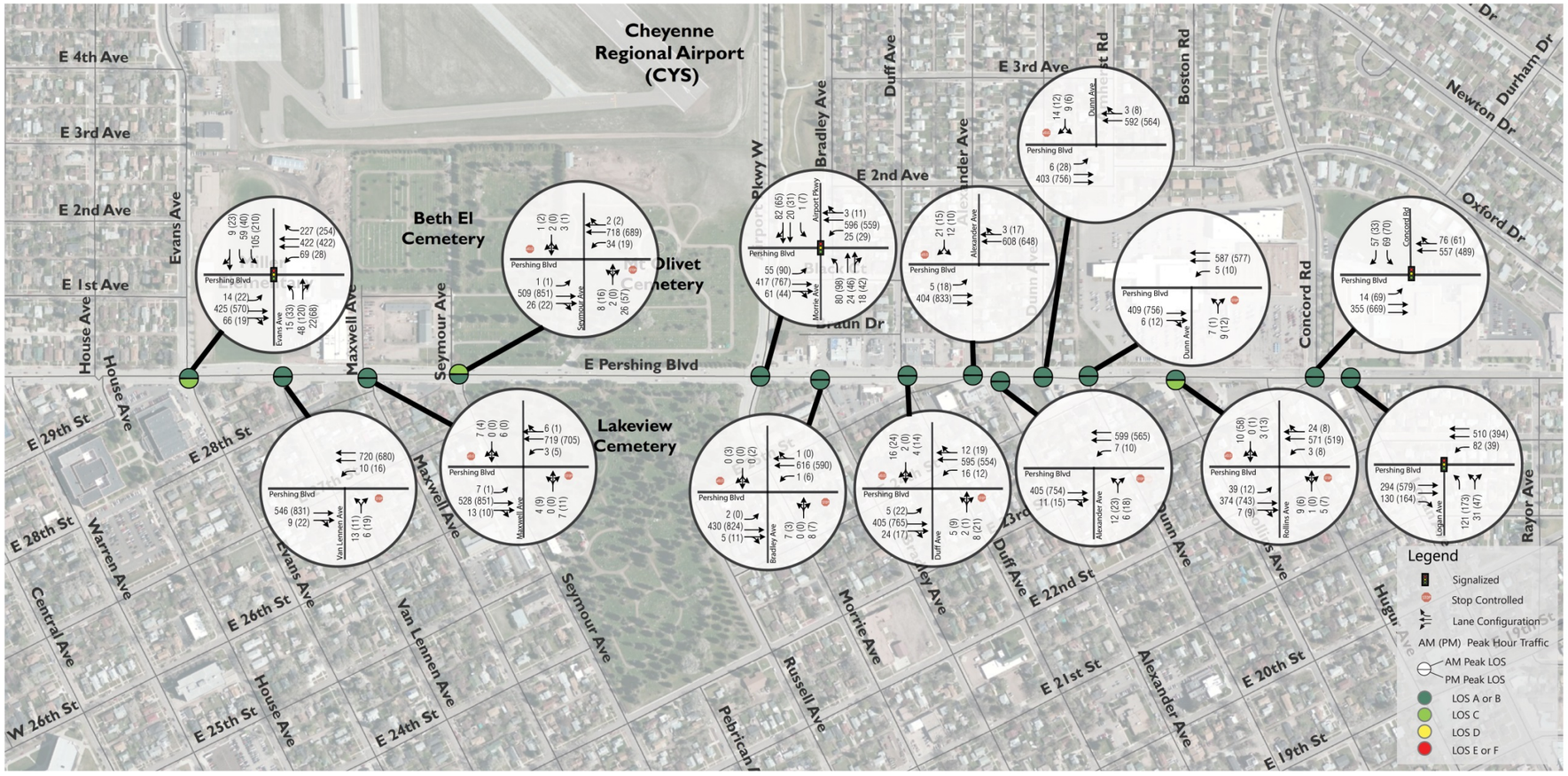
Pershing Boulevard Complete Streets
Right of Way Width and Parcel Diagram

Vehicular Volumes

The following figure shows vehicle turning movement counts at intersections along Pershing Boulevard where data was available. Data was collected by the Cheyenne MPO and All Traffic Data for the AM peak (7:00-9:00 AM) and PM Peak (4:00-6:00 PM) on May 29, 2014.

Vehicular Crashes

Crash data for was provided by the Cheyenne MPO and indicates the total number of crashes within the study area as 191 total between the years of 2005 and 2014. The highest number of accidents in one year was 32 and that was in 2010. The lowest number of accidents in one year was nine and that was in 2012.



Pershing Boulevard Complete Streets
Existing Intersections: Volumes and LOS

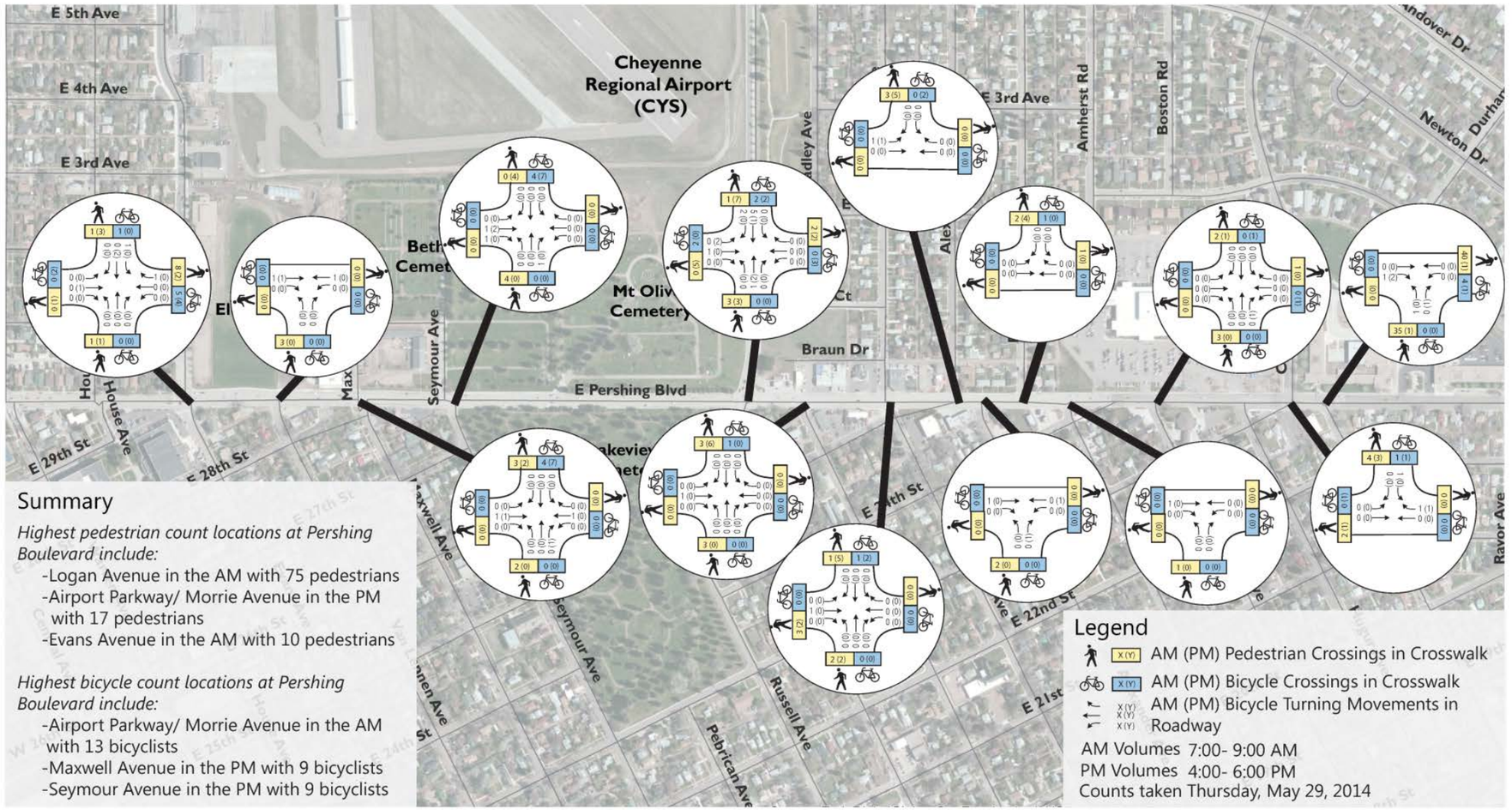
Pedestrian and Bicycle Volumes

The following figure shows pedestrian volumes in the crosswalks in both directions (yellow boxes) and bicycle volumes in both directions in the crosswalk (blue boxes) and bicycle turning movements in the roadway at intersections on Pershing where data is available. Data was collected for the AM peak (7:00-9:00 AM) and PM Peak (4:00-6:00 PM) on May 29, 2014.

Volume of bicycles and pedestrians are relatively low along this corridor. The highest volumes of pedestrians along Pershing Boulevard were recorded at Logan Avenue during the AM peak. This pedestrian traffic is likely associated with the Carey Junior High School. The highest volumes of bicyclists along Pershing Boulevard were recorded crossing Pershing Boulevard at Airport Parkway/ Morrie Avenue in the PM peak. Bicycle counts are likely higher at this crossing due to the presence of a signalized intersection. High pedestrian and bicycle counts reflect an increased demand at these locations.

Transit Facilities and Service

This section of Pershing Boulevard is serviced by the Cheyenne Transit Program's Downtown Route, the West Route, and the Northeast Route. This is a fixed route service that operates Monday through Saturday. The Downtown Route has a stop located at Morrie Avenue.



Pershing Boulevard Complete Streets

Existing Bicycle and Pedestrian Volumes

PUBLIC OUTREACH

The consultant team worked with the MPO and City staff to conduct a comprehensive Public Outreach for this project. The outreach included handing out informational flyers along the corridor, individual business interviews, a walking audit of the corridor, a project website, two community outreach workshops, and presentations to the MPO Technical Committee. The business interviews, walking audit, and community workshops are detailed below. Written comments received are included in the appendix.

The public outreach component of this project helped identify the qualitative issues as experienced by local business owners and users of Pershing Boulevard.

BUSINESS INTERVIEWS

The consultant team and the Cheyenne MPO planning staff interviewed 11 businesses located along E. Pershing Blvd. on Wednesday, June 4, 2014 to get a better understanding of their transportation and safety issues in the area.

Representatives from the followed businesses were interviewed:

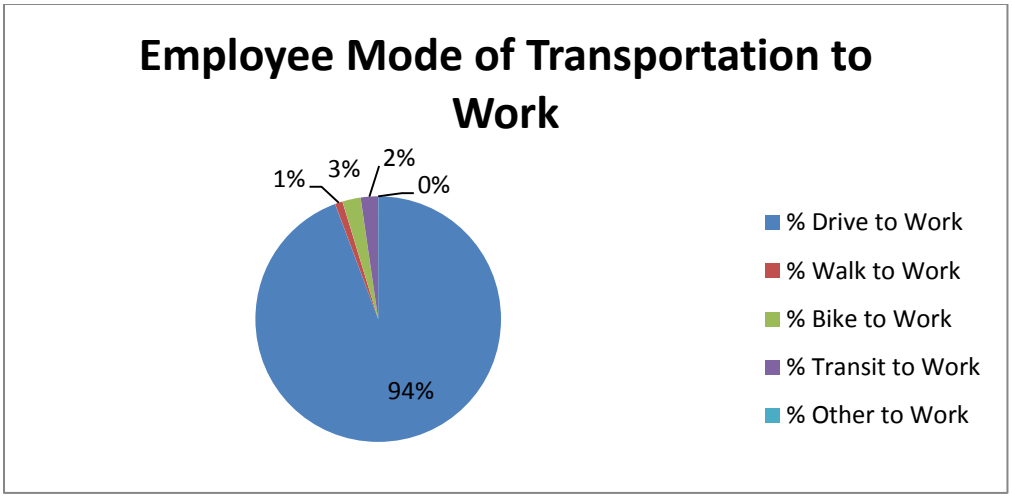
- Four Winds Bar & Lounge, 1103 E Pershing
- Frontier Access & Mobility, 1207 E Pershing
- Lennox Auto Body, 617 E Pershing
- Hoys Drug Store, 1115 E Pershing
- State Farm, 1022 E Pershing
- Wyoming State Bank, 1525 E Pershing
- Schmidt Dentistry, 1204 E Pershing
- A Stitch in Life, 1024 E Pershing
- Cheyenne Vision Clinic, 1200 E Pershing
- Dairy Queen, 1038 E Pershing
- Bighorn Shootin' Irons, 1020 E Pershing

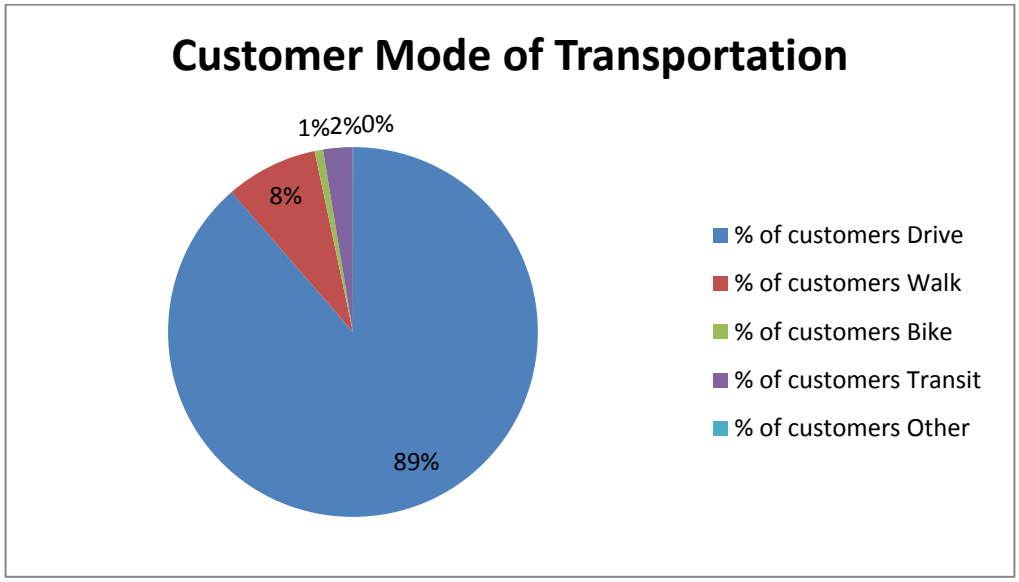
The businesses were primarily small service industries, retail, and bar/restaurants. With the exception of Four Winds Bar & Lounge and Dairy Queen, average businesses hours were 8 am to 5 pm. Employment size ranged from single owner-operated businesses (A Stitch in Life and Bighorn Shootin' Irons) to larger employers like Dairy Queen, with 50 employees. Wyoming State Bank, Cheyenne Vision Clinic, and Hoys Drug Store were the next largest employers, with over 20 employees each. Seven of the eleven businesses have been located at their present address for over thirty years.

In addition to the business interviews in June, 2014; two additional business meeting were held. These meetings occurred on February 20, 2015 with Rande Pouppirt, business owner and Todd Anderson, owner of Elite Cleaners.

In all cases, business representatives indicated that most of their employees drive to work. Taking an (unweighted) average of all businesses, 94% of employees drove, 3% biked, 2% took transit, and 1% walked to work. Dairy Queen had the highest of non-motorized transportation to work, 15%, followed by Lennox Auto Body with a 12% mode split.

Most customers accessed the interviewed businesses by car. On average, 89% of customers drove, 8% walked, 2% took transit, and 1% biked to E Pershing Blvd. businesses. Dairy Queen had the largest mode split with 40% of customers walking to the store. Dairy Queen attracts a lot of foot traffic. Several businesses beside the Dairy Queen indicated that the large number of people crossing and walking along Pershing Blvd. to get to Dairy Queen is a serious safety concern.





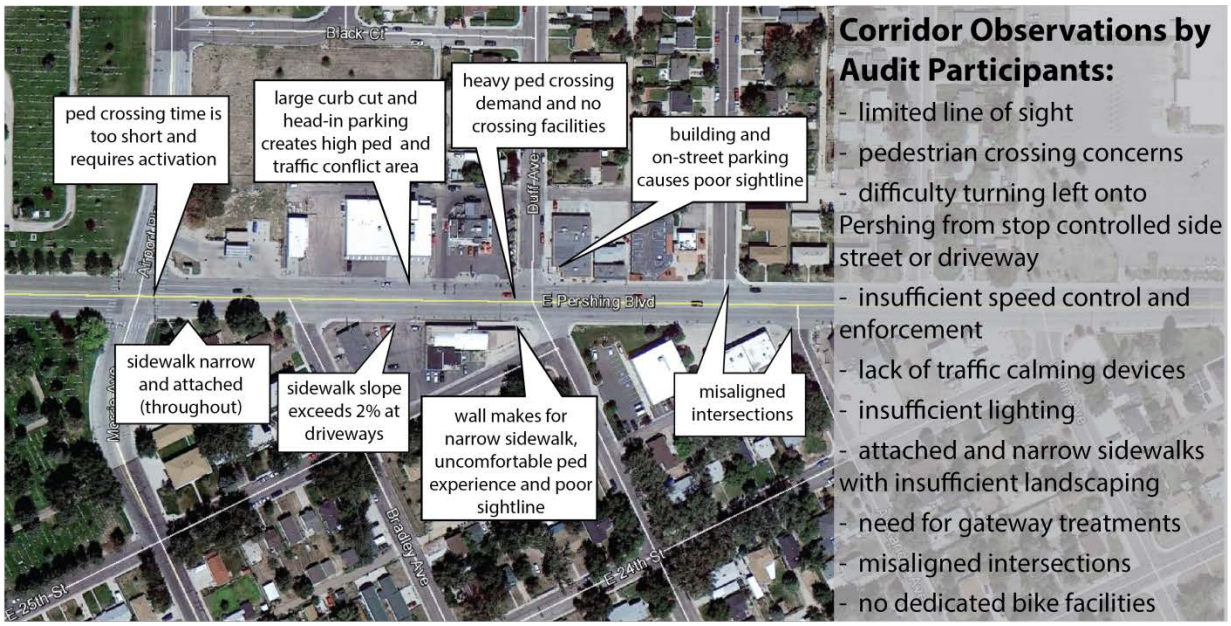
WALKING AUDIT

A walking audit was performed on Pershing Boulevard from Morrie Avenue to Dunn Avenue on June 18, 2014. An audit is evaluation of the walking and biking environment, performed as a pedestrian in this case, in order to more effectively identify safety, accessibility, and comfort concerns for bicyclists and pedestrians. There were 17 community stakeholders in attendance at the audit including representatives from the MPO, the City Planning Department, the City Engineering Department, Wyoming Department of Transportation, Cheyenne Police Department, AARP, and a private citizen. One of the audit attendees uses a wheelchair, which provided additional insight on wheelchair accessibility on the corridor and American Disabilities Act (ADA) compliance.

A detailed summary of comments is found in the Existing Conditions section of the report. The figure below illustrates the location of the challenges noted in the walking audit and through business interviews along the corridor graphically.

Comment sheets from the walking audit are included in Appendix C.

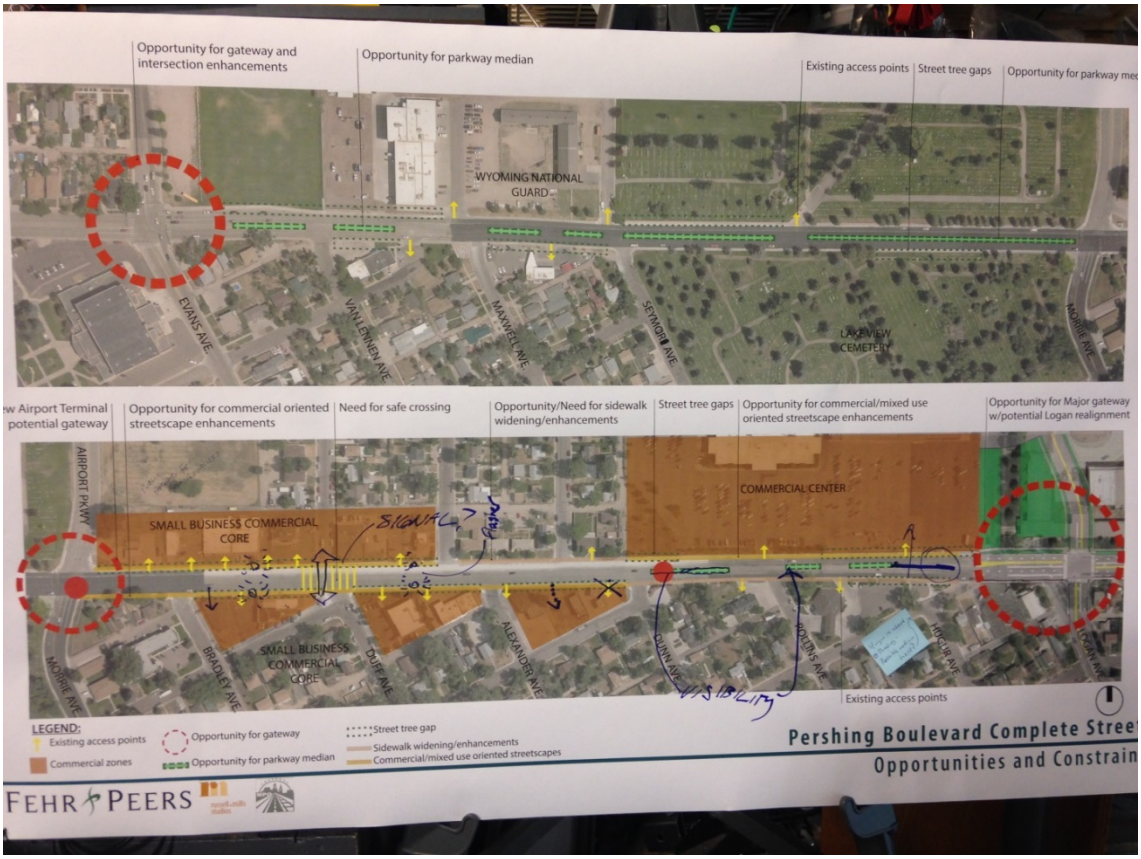
Corridor Challenges from the Walking Audit and Business Interviews



COMMUNITY WORKSHOPS

Two community workshops were held during the course of the project. Both workshops were held at Frontier Access and Mobility – located within the project corridor. The first workshop was held on August 20th, 2014 during the initial phase of the project. The goals of the first workshop were two-fold: 1) to provide an orientation to participants and establish community goals and priorities, and 2) to identify existing conditions and needs and opportunities within the study area. Examples of enhancements and solutions used in comparable communities and conditions to improve corridor connectivity, mobility, and safety for all modes were provided for input.

The second community workshop was held on March 25, 2015 and was structured to include an informational session, with presentations, posters, and large area maps to present the three project phasing alternatives, solicit feedback to refine these concepts, and to decide on the final preferred plan.



EXISTING CONDITIONS ASSESSMENT

The Existing Conditions Assessment is a combination of quantitative and qualitative analysis across a variety of existing conditions. The purpose of this process is to identify and assess deficiencies and to identify opportunities based on the results of the analysis and the ascertained community values. This chapter identifies existing deficiencies in the roadway, bicycle, and pedestrian facilities.

The traffic operations analysis addressed unsignalized and signalized intersection operations using the procedures and methodologies contained in the *Highway Capacity Manual 2000 (HCM), Transportation Research Board* for the weekday AM and PM peak hour traffic operations. Study intersection operations were evaluated using level-of-service calculations as analyzed in the Synchro software (version 8).

VEHICULAR LEVEL OF SERVICE CRITERIA

To measure and describe the operational status of the local roadway network and corresponding intersections, transportation engineers and planners commonly use a grading system called level-of-service (LOS) put forth by the *Transportation Research Board's HCM 2000*. LOS characterizes the operational conditions of an intersection's traffic flow; ranging from LOS A (indicating free flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceeds the design capacity, resulting in long queues and delays). These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. Although LOS A through C are desired levels, LOS D is considered acceptable in urban conditions. Traffic conditions with LOS E or F are generally considered unacceptable and represent significant travel delay, increased accident potential, and inefficient motor vehicle operation. The LOS is determined differently depending on the type of control at the intersection.

At signalized intersections, the operation analysis uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the intersection's volume-to-capacity (v/c) ratio. For signalized intersections the HCM defines the intersection LOS as the average delay per vehicle for the overall intersection, which includes all approaches.

At unsignalized intersections, the operation analysis uses various intersection characteristics (such as traffic volumes, lane geometry, and stop-controlled approaches) to estimate the intersection's volume-to-capacity (v/c) ratio. For unsignalized intersections the HCM defines the intersection LOS as the average delay per vehicle for the worst approach intersection.

VEHICULAR LEVEL OF SERVICE

The following figure shows the Level of Service (LOS) for each intersection along Pershing Boulevard for which data was available. Analysis was performed with the AM and PM peak vehicle counts provided by the Cheyenne MPO, signal timing provided by the city, and existing roadways, intersection geometry and traffic parameters such as peak hour factor calculated from the counts provided. This analysis assessed the delay, LOS performance and queuing for each of the studied intersections. Standard vehicular flow numbers, 1,900 vphpl (vehicles per hour per lane), were utilized for the analyses.

Table 1 provides the existing overall and approach delay and LOS for the study intersections. The overall intersection LOS in signalized intersection and highest delay approach in unsignalized intersections are **bold**.

Intersection Level of Service (LOS)

Delay (seconds) Signalized	LOS	Flow Conditions	Delay (seconds) Unsignalized
<10	A		<10
11-20	B		10-15
21-35	C		15-25
36-55	D		25-35
56-80	E		35-50
>80	F		>50

Delay at intersection per vehicle

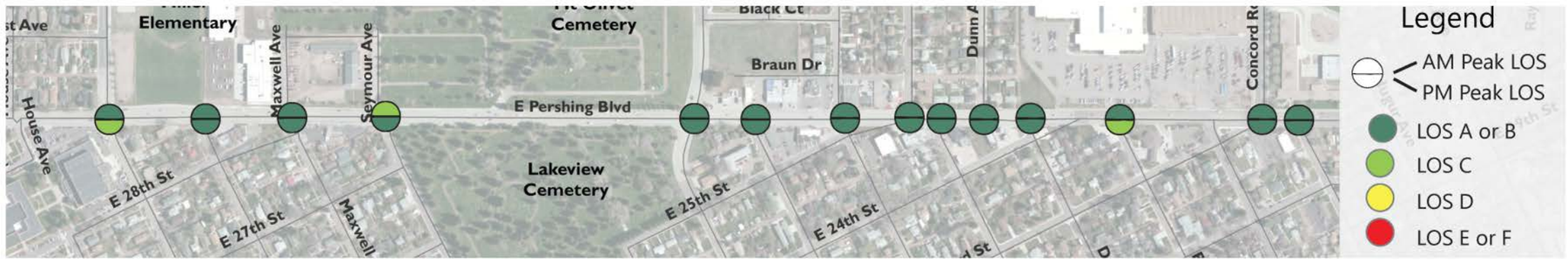
LOS characterizes the performance of an intersection's traffic flow, ranging from LOS A to LOS F. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving.

Considered an acceptable LOS

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
• Light traffic • Free flow speeds	• Slightly increased traffic levels • Still free flow speeds	• Approaching moderate congestion levels • Speeds near free flow	• Speeds reduced • Lane changes restricted due to traffic	• Congestion • Irregular traffic flow	• Road at capacity • Gridlock with frequent stops

Summary:

- Most volumes are on the through EB/WB of Pershing Boulevard.
- Top 3 volume intersections are: Evans Avenue, Morrie Avenue/Airport Parkway, Seymour Avenue
- All intersections operate acceptably.



Pershing Boulevard Complete Streets

Existing Intersection Level of Service

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Table 1: Pershing Boulevard Existing Intersection Level of Service

No.	Intersection	Control	Approach	2014 Existing			
				AM		PM	
				Delay	LOS	Delay	LOS
1	Pershing Blvd & Evans Ave	Signal	**Overall**	**12**	**B**	**25**	**C**
			EB	11	B	16	B
			WB	8	A	36	D
			NB	25	C	23	C
			SB	24	C	22	C
2	Pershing Blvd & Van Lennen Ave	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	**12**	**B**	**12**	**B**
			SB	-	-	-	-
3	Pershing Blvd & Maxwell Ave	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	12	B	**14**	**B**
			SB	**14**	**B**	11	B
4	Pershing Blvd & Seymour Ave	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	12	B	**14**	**B**
			SB	**18**	**C**	14	B
5	Pershing Blvd & Morrie Ave/Airport Pkwy	Signal	**Overall**	**8**	**A**	**10**	**A**
			EB	4	A	7	A
			WB	5	A	8	A
			NB	28	C	22	C
			SB	26	C	20	C
6	Pershing Blvd & Bradley Ave	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	**11**	**B**	11	B
			SB	0	A	**12**	**B**
7	Pershing Blvd & Duff Ave	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	11	B	13	B
			SB	**12**	**B**	**13**	**B**

8	Pershing Blvd & Alexander Ave (north of Pershing)	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	-	-		-
			SB	**12**	**B**	**13**	**B**
9	Pershing Blvd & Alexander Ave (south of Pershing)	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	**12**	**B**	**15**	**C**
			SB	-	-	-	-
10	Pershing Blvd & Dunn Ave (north of Pershing)	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	-	-	-	-
			SB	**12**	**B**	**12**	**B**
11	Pershing Blvd & Dunn Ave (south of Pershing)	Side Street Stop	EB	0	A	0	A
			WB	0	A	0	A
			NB	**11**	**B**	**12**	**B**
			SB	-	-	-	-
12	Pershing Blvd & Rollins Ave	Side Street Stop	EB	1	A	0	A
			WB	0	A	0	A
			NB	**12**	**B**	**15**	**C**
			SB	12	B	12	B
13	Pershing Ave & Concord Rd	Signal	**Overall**	**10**	**A**	**15**	**B**
			EB	17	B	21	C
			WB	1	A	1	A
			NB	-	-	-	-
			SB	27	C	30	C
14	Pershing Ave & Logan Ave	Signal	**Overall**	**10**	**B**	**11**	**B**
			EB	1	A	1	A
			WB	13	B	19	B
			NB	27	C	29	C
			SB	-	-	-	-

All intersections in the study area are operating at a LOS C or better.

BUSINESS CONDITIONS

Businesses were asked a variety of questions pertaining to access and desired improvements.

Access

While some access and circulation concerns were business-specific, others such as speed and limited line of sight were issues brought up by multiple businesses. Nearly all businesses interviewed indicated that crossing Pershing Blvd. was a major safety concern. The Cheyenne Vision Clinic stated that access out of the Dairy Queen next door conflicts with the Vision Clinic access. Other businesses indicated that trying to exit east on Pershing was problematic. Dairy Queen indicated that accessing the store via foot was particularly difficult.

Transportation Improvements

Two businesses indicated that no transportation improvements were necessary. Of the businesses that recommended transportation improvements, the most frequent request was a crosswalk at Duff and Pershing with either flashing lights and or an audible signal. The second most requested improvement was a traffic light at Duff and Pershing, followed by speed control/enforcement, and traffic calming devices.

Enhancements

Businesses were asked about enhancements that could improve the business environment along Pershing. Several owners were supportive of additional lighting, buffered sidewalks and landscaping; however others did not think enhancements were necessary. A few businesses thought a gateway or district signs could improve their identity as a neighborhood business district.

Overall, the top concerns from the business owner perspective for the area are high speeds and traffic volumes, difficulty safely crossing, and limited sight distance.

BICYCLE AND PEDESTRIAN CONDITIONS

Volumes of bicycles and pedestrians are relatively low along this corridor. This does not necessarily reflect a low demand by these modes, but rather insufficient infrastructure to create a comfortable and safe environment for people to walk or bicycle along Pershing. The highest volumes of pedestrians along Pershing Boulevard were recorded at Logan Avenue during the AM peak. This pedestrian traffic is likely associated with the Carey Junior High School. While conducting the business interviews; project staff also observed several joggers along the corridor. The highest volumes of bicyclists along Pershing Boulevard were recorded crossing Pershing Boulevard at Airport Parkway/ Morrie Avenue in the PM peak. Bicycle counts are likely higher at this crossing due to the presence of a signalized intersection and the greenway to the north. High pedestrian and bicycle counts reflect an increased demand at these locations. Additional facilities or safety countermeasures should be focused at these intersections.

Particular issues for bicyclists and pedestrians noted through the walking audit include:

- Sidewalk quality
    - Street lighting is minimal with no pedestrian scale lighting provided
    - At the west end of Hoys drug store, at Duff Avenue and Pershing Boulevard, there is a concrete planter and brick wall that narrows the sidewalk down to three feet and should be relocated to provide at least a four foot wide sidewalk
    - Sidewalks are narrow in places and attached everywhere, requiring pedestrians to be proximate to traffic and detracting from the pedestrian experience
    - There is no street furniture
    - There is no landscaping or vegetation along this corridor other than planters installed by some business owners which block part of the sidewalk
- ADA accessibility
    - Sidewalk cross-slope exceeds 2% at driveway aprons making it difficult for pedestrians with mobility aids to negotiate driveways
    - The majority of ADA ramps are radial in nature and orient pedestrians into the intersection at 45 degree angles. The west leg of Pershing at Duff has directional ramps to cross Pershing
    - Sidewalks are often interrupted by utilities or street poles
- Access management
    - Given the commercial land use of the corridor, there are a high number of access points along Pershing Boulevard
    - The strip mall to the west of Dairy Queen has head in parking that requires drivers to back out into the sidewalk and roadway in order to exit
- Crossings
    - There are only three marked crossings on Pershing within a one-mile distance (from Evans Avenue to Logan Avenue)
    - Pershing is five lanes wide and has a lot of traffic to cross without a signal or some sort of pedestrian facility
    - Many of the cross streets in this study area have staggered crossings across Pershing Boulevard, such as Dunn Avenue and Alexander Avenue, making it difficult for all modes to safely cross Pershing
- Bicycle facilities

- There are no dedicated bicycle facilities on the corridor
- Traffic volumes and speeds on Pershing Boulevard are too high for bicyclists to comfortably ride with traffic

- Duff Avenue

- Based on discussions with business owners and input from the public; Duff is the primary pedestrian crossing location along the corridor due to its high pedestrian demand
- The doctor's office building on the northeast corner causes poor sightline for southbound approaching vehicles coming from Duff, resulting in vehicles encroaching on the crosswalk to judge gaps in traffic
- The south leg of Duff is extremely wide and could benefit from a roadway narrowing
- Parking should be restricted to 20' downstream of crosswalk along the northbound direction to improve intersection sight lines and prevent drivers from having to back into the crosswalk to exit the parking space
- Traffic congestion associated with the Dairy Queen drive-thru sometimes extends back out onto Pershing
- During the noon hour, there were very few gaps to cross Pershing for someone walking at 3.5 feet per second

- Airport Parkway/ Morrie Avenue
    - Pedestrian countdown signal indications are not provided (older hand and man style ped heads are currently provided)
    - Pedestrian clearance intervals have not been updated to a slower 3.5 ft/sec pedestrian walking speed
    - A pedestrian must push the pedestrian 'push button' in order to activate the pedestrian clearance interval to cross Pershing
    - The only bus stop within the walk area is located on the northeast corner of the intersection and has an accessible bus shelter, but the bus shelter is at the corner of a large intersection and does not feel particularly safe to wait at

Although the issues addressed above are discussed in the context of the four-block extent of the walking audit, most of these concerns are applicable throughout the larger study area. Issues present throughout the study area include the following:

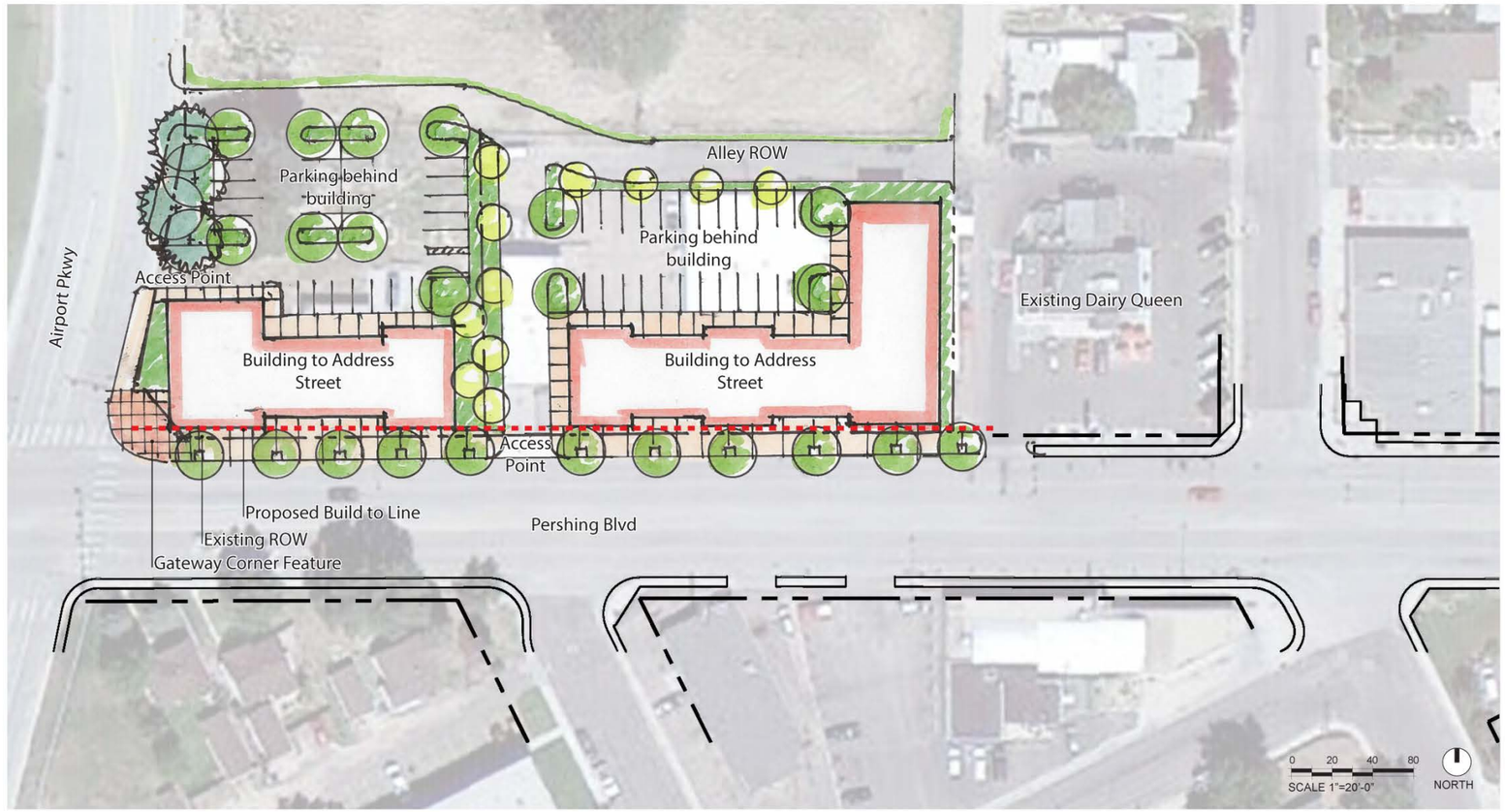
- Lack of pedestrian crossing opportunities
- Challenging pedestrian crossings across five lanes of traffic
- Misaligned intersections
- Insufficient lighting, particularly pedestrian-scale
- Lack of street furniture
- Narrow and attached sidewalks
- Sidewalk slope exceeds 2% at driveways, making it difficult for mobility impaired users to navigate
- Lack of bicycle facilities

POTENTIAL OPPORTUNITIES

Based on results from the existing conditions analysis, walking audit, business interviews, project website, and community outreach, a number of potential opportunities were identified.

- Sidewalk quality
    - Implement street furniture and additional pedestrian-scale lighting to improve the pedestrian experience as well as perceived safety.
    - Widen sidewalks and add a landscaped buffer between the sidewalk and roadway wherever is feasible with the current right of way.
- ADA Accessibility
    - Jog the sidewalk back from the street at driveways in order to keep the sidewalk and driveway at grade and avoid the cross-slope.
    - When a diagonal curb ramp is used, provide 48 inches for users to maneuver into the crosswalk.
    - Sidewalks should be at least 5 feet wide (and wider where feasible), free from obstacles and protruding objects.
- Access Management
    - Line up intersections in order to create standard four-leg intersections and allow for simpler crossings with fewer vehicle-pedestrian conflicts.
    - Reconfigure the parking in the strip mall parcel west of Dairy Queen from head in parking to diagonal parking and a one-way circulation on site. Drivers currently have to back out across the sidewalk or out into the street to exit the parking lot.
    - Consolidate access points whenever possible by creating shared driveways or a single entry/exit driveway.
- Crossings
    - Add additional marked crossings with pedestrian refuge medians in locations where access is not sacrificed and that demonstrate a high pedestrian demand.
    - Restrict parking on side streets to begin 20′ downstream of Pershing Boulevard in order to allow for better sight line for turning and crossing vehicles and prevent encroachment into the pedestrian crossing zone.
    - Adjust pedestrian crossing time to allow for crossing speeds of 3.5 feet per second and provide pedestrian countdown signal indications.

- Redevelopment
    - The northeast corner of Pershing Boulevard and Airport Parkway was identified as a location where redevelopment and access consolidation would prove beneficial. The figure below identifies one potential redevelopment concept for this area that limits vehicular access to Pershing Boulevard and provides access to Airport Parkway and a newly configured alley to the north. This is just an example how redevelopment can implement access management as well as, provide good pedestrian and place making elements.


Airport Pkwy
Parking behind building
Access Point
Alley ROW
Parking behind building
Existing Dairy Queen
Building to Address Street
Building to Address Street
Access Point
Proposed Build to Line
Existing ROW
Gateway Corner Feature
Pershing Blvd
0 20 40 80
SCALE 1"=20'-0"
NORTH

DESIGN CONCEPT DEVELOPMENT

Character Preferences/Place making Elements

A set of example images were provided at the first public workshop to assess preferences for a variety of place making elements such as medians, gateway monuments, benches, seat walls, tree grates/guards, pavement types crosswalk types, planting and lighting. Images were ranked by participants using red and green dots, coupled with an explanation from participants. Preferences indicated basic levels of improvements are preferred with xeric/low water use plantings, medians that are lower maintenance and similar in character to those found on Lincolnway and pedestrian street lights. The images presented can be seen in the Appendix.

Alternative Plan Scenarios and Cross-Sections

Three alternative cross-sections were developed to accommodate a variety of approaches to integrate pedestrian facilities and bike facilities in some manner.

Option A

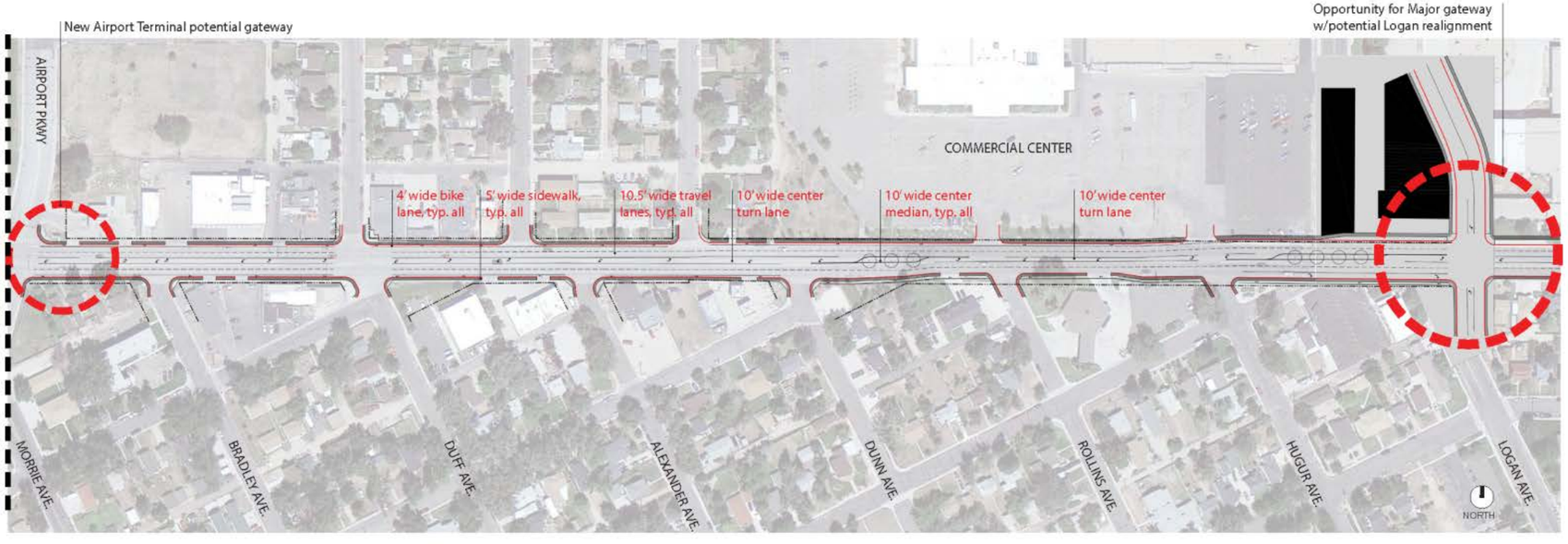
Option A maintains existing curbs integrates a 4′ bike lane on either side of the road with a 1′ stripe and reduces travel lanes to 10′ – 6″ while incorporating a 10′ median/center turn lane. 5′ attached walks on either side of the road are maintained.

Option B

Option B maintains existing curbs, integrates a 9′-6″ attached multi-use path for pedestrians and bikes and maintains existing travel lane widths. A planted median/center turn lane is incorporated into the cross-section.

Option C

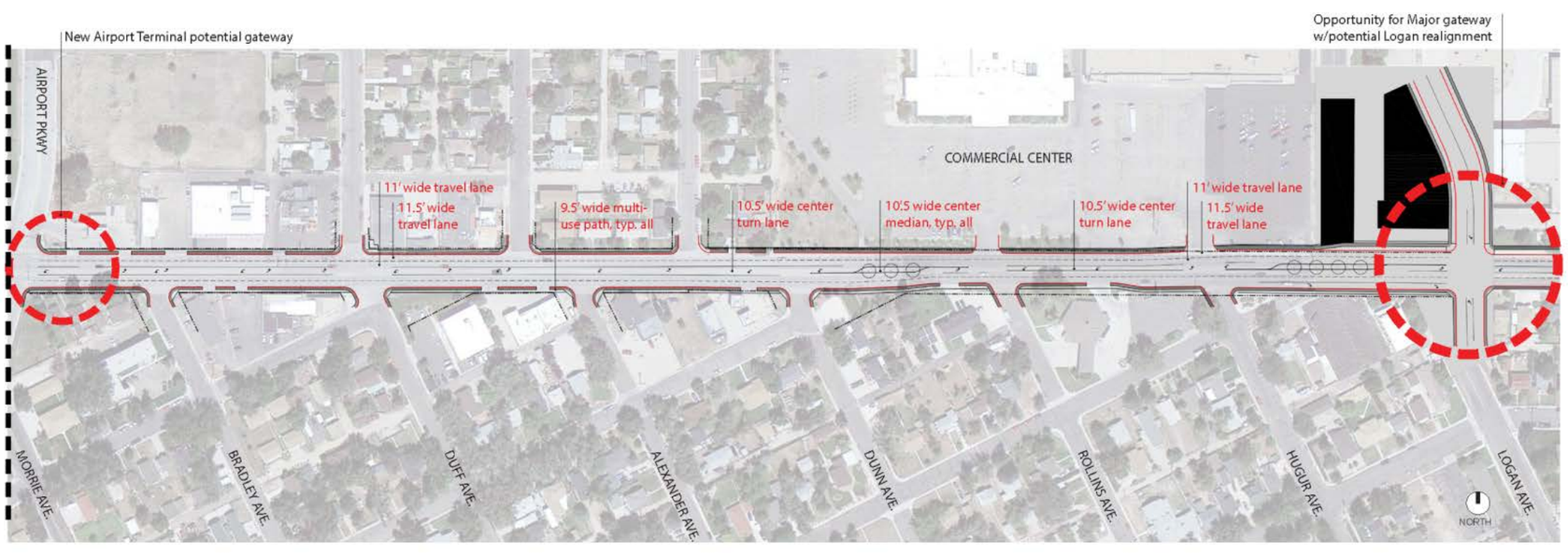
Option C integrates an 8′ detached multi-use path with a planted parkway/tree-lawn adjacent to the road. 10′-6″ travel lanes are incorporated with a 10′ planted median/center turn lane. This alternative modifies the existing curb line and extends it in to the existing street cross section to incorporate the detached multi-use walk.



Pershing Boulevard Complete Streets

Option A - Maintain existing curbs, 4' bike lane, center median and 10.5' travel lanes

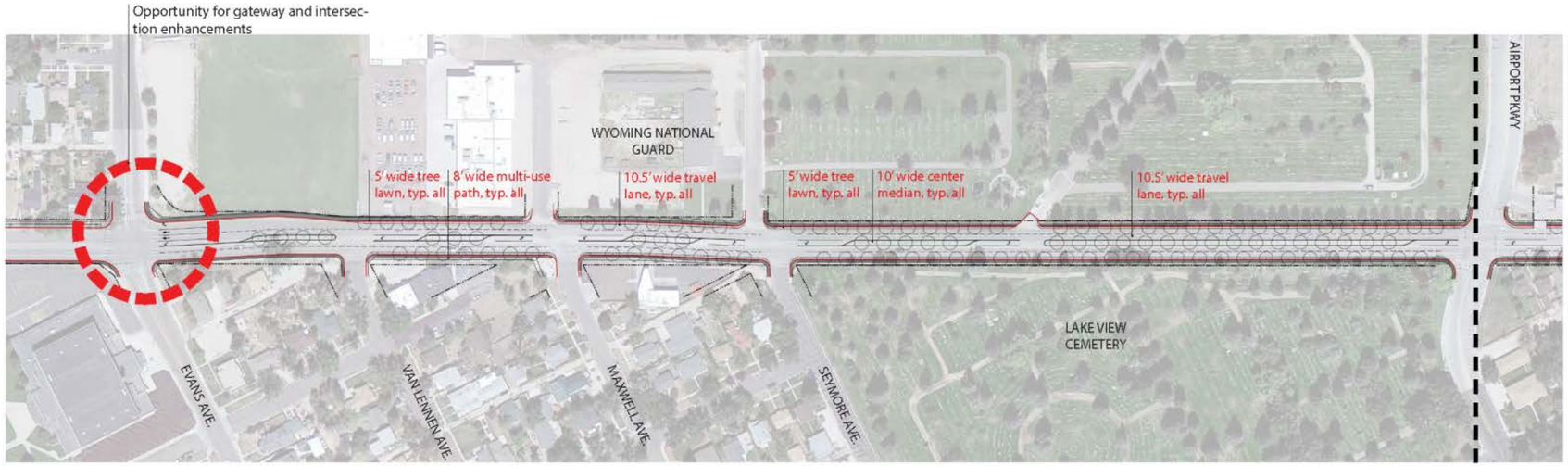
FEHR PEERS russell·mills studios



Pershing Boulevard Complete Streets

Option B - Maintain existing curbs, 9.5' multi-use path, center median, and existing lane widths

FEHR PEERS russell+mills studios



Pershing Boulevard Complete Streets

Option C - New curb and gutter, 8' multi-use path, center median, 5' tree lawn and 10.5' travel lanes

Preferred Cross-Section

The alternatives were evaluated in a workshop with City Staff and at the first public workshop. It was determined that the roadway width from curb to curb should remain as it is in the current existing condition. On-street bike lanes were seen as a less feasible means of integrating bike facilities, and it was determined that a multi-use pedestrian/bike path in a detached condition that integrates some street trees is most desirable.

The preferred street cross-section involves integrating a detached 6′ walk on the south side of Pershing Blvd. with a 4′ planting buffer, 10′-6″ travel lanes, a 14′ planted median/center turn lane and an 8′ multi-use path on the north side of Pershing Blvd. This multi-use path on the north side will tie into the East Pershing Blvd. constructed condition. Street trees are integrated on the north side of Pershing Blvd. in grates where feasible.

Project Phasing and Implementation

The project implementation sequence can be broken into four phases:

Phase I – Pedestrian Safety

Phase II – Commercial Core – Airport Parkway to Dunn Ave.

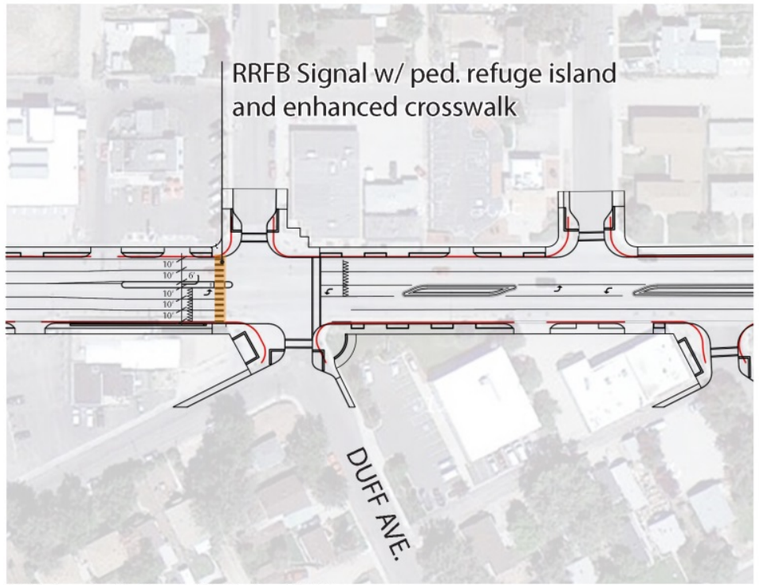
Phase III – Commercial Core – Dunn Ave. to Logan Ave.

Phase IV – Multi-Use Path/Planted Medians – Evans Ave. to Airport Parkway

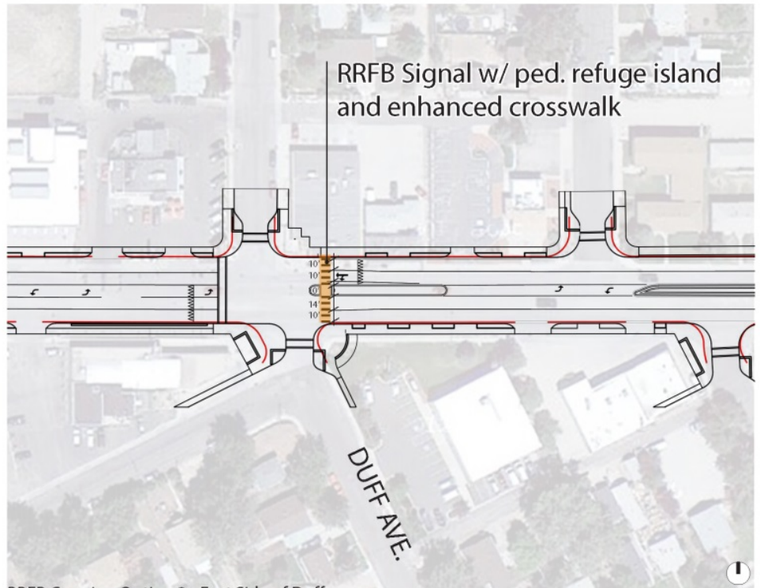
Phases are sequenced based on priority as informed through public workshops and general pedestrian safety needs along the corridor.

Phase I – Pedestrian Safety – Approx. $90-110 K

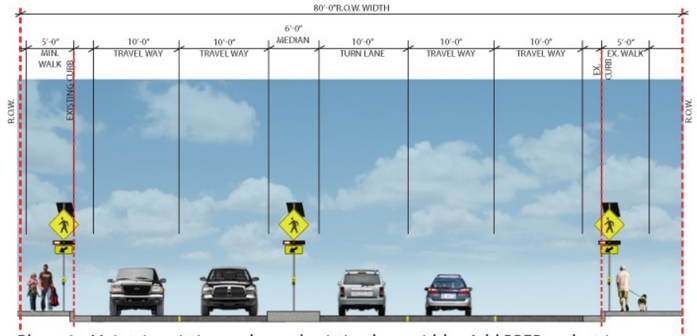
Phase I involves integrating a pedestrian crossing at Duff Ave. and Pershing Blvd to facilitate crossing within the heavily used commercial area here. This involves installation of a Rectangular Rapid Flashing Beacon set of signals on either the east or west side of Duff Ave. This involves integrating a 6′ refuge median as well on the west side of Duff Ave. or a 10′ refuge median on the east side of Duff Ave. Restriping lanes to 10′ will be required in either version of this concept.



RRFB Crossing Option 1 - West side of Duff



RRFB Crossing Option 2 - East Side of Duff



Phase 1 - Maintain existing curbs, and existing lane widths. Add RRFB pedestrian crossing, center median refuge island and enhanced crosswalk.

Aerial View - Looking East along Pershing Boulevard at the RRFB crossing Option 1.

Phase II - Commercial Core – Airport Parkway to Dunn Ave. - $2.6 M

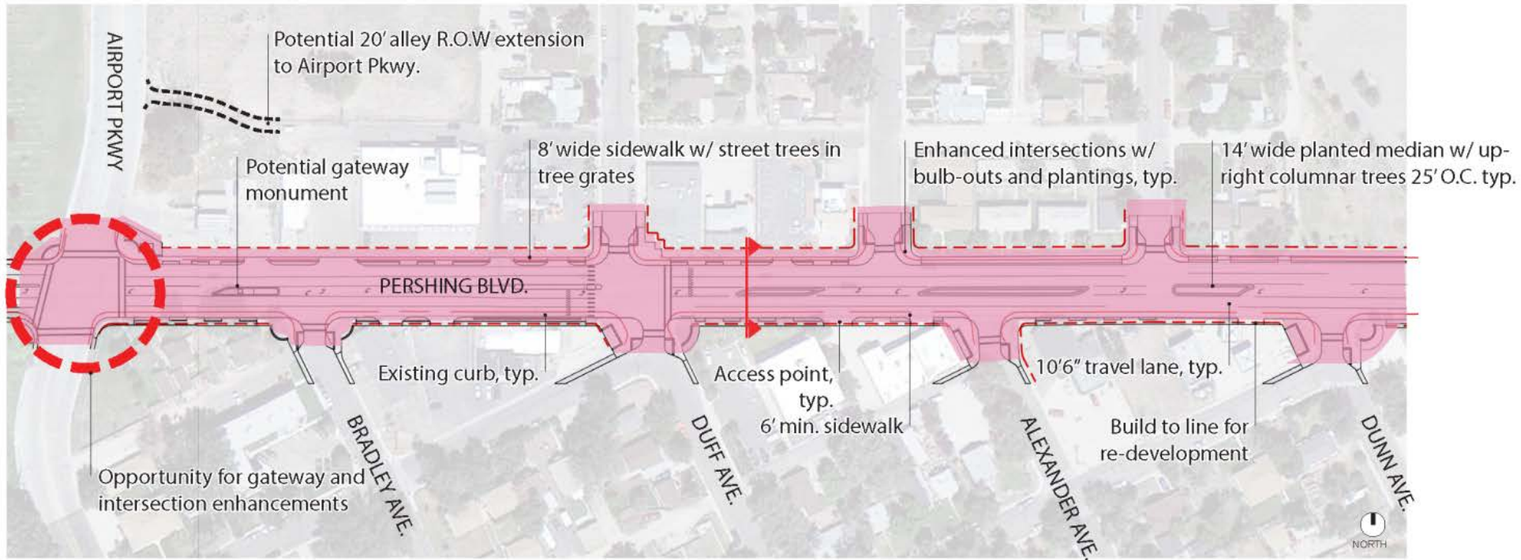
To facilitate business growth and redevelopment in the commercial core of Pershing Blvd. from Airport Parkway to Dunn Ave., Phase II involves implementing the proposed cross-section here, including the following:

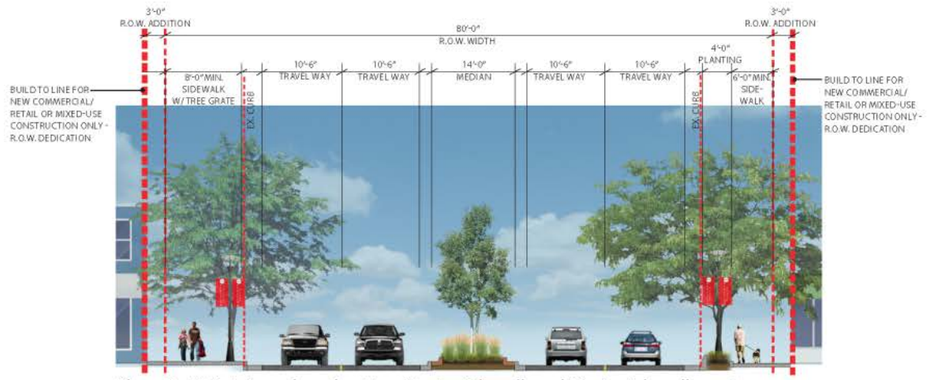
- Lane widths changed to 10.5', center planted medians 14' wide.
- Construct new sidewalks and planting areas, add street furnishings
- Construct planted medians from Airport Pkwy. to Dunn Ave.
- Construct enhanced crossings and corner bulb-outs.
- Establish new build to easement for future re-development.

Gateway monument signage is proposed as an identifier to the commercial business district tentatively named "Pershing Place". Businesses should begin to mobilize as an advocate for this concept and to establish a potential Special Improvement District, or at a minimum, to establish a business owners association that will collect dues to begin to establish financing for planting and landscape maintenance here.

A future build-to line is proposed for new development/redevelopment within this commercial core as a dedication of additional R.O.W. in order to accommodate additional space for site amenities and a more effective multi-use path on both sides of Pershing Blvd.

If the City of Cheyenne chooses to implement this cross section design, right-of-way dedication would be necessary.





Phase 2 - Maintain curb and gutter, 6' min. sidewalk and 8' min. sidewalk, center median, street trees in tree grates and 10.5' travel lanes.

Aerial View- Looking East along Pershing Boulevard at the intersection of Airport Pkwy. and Pershing Blvd. w/ gateway monument sign.

Pershing Boulevard Complete Streets

Phase Two - Aerial View

Aerial View- Looking East along Pershing Boulevard at the intersection of Duff Ave. and Pershing Blvd.

Pershing Boulevard Complete Streets

Phase Two - Aerial View

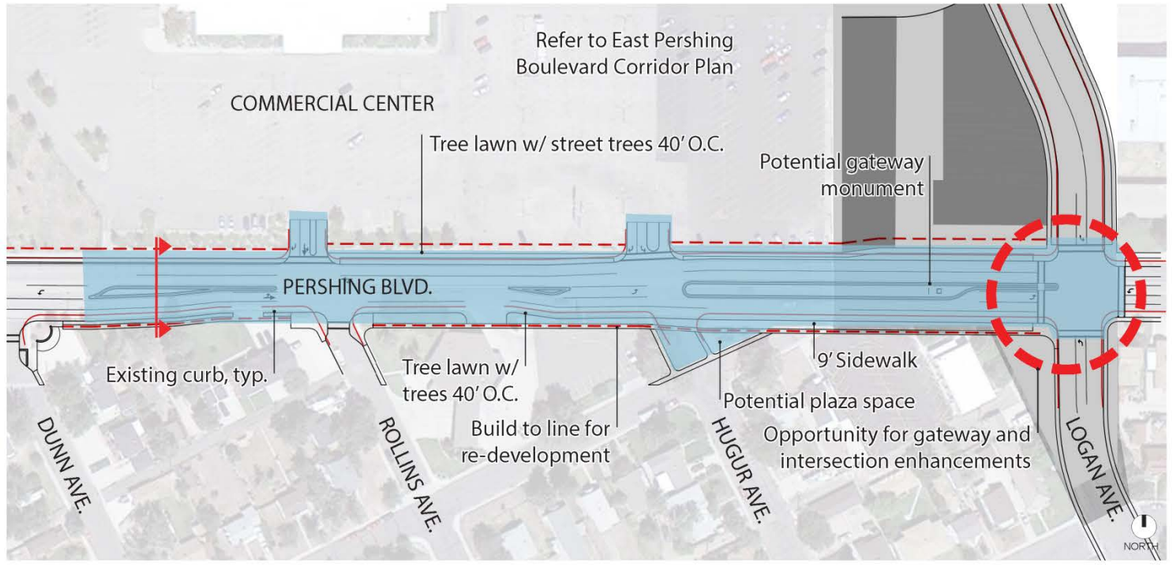
FEHR PEERS russell+mills studios

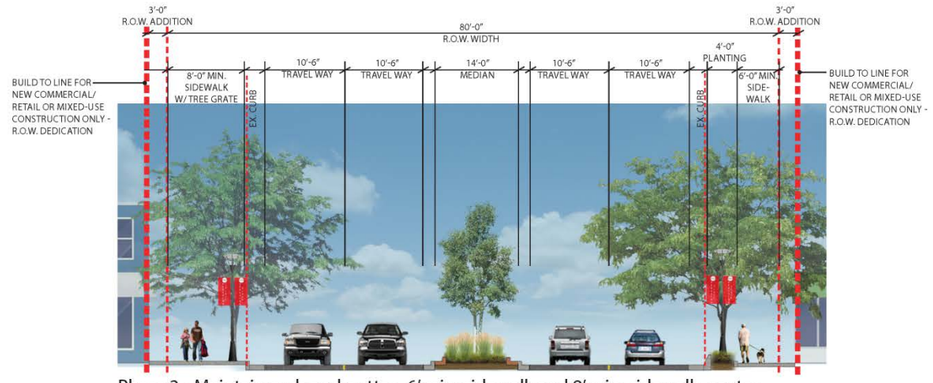
Phase III – Commercial Core – Dunn Ave. to Logan Ave. - $1.4 M

To facilitate additional business growth and redevelopment east of Dunn Ave. to Logan Ave. and integrate streetscape amenities here, Phase III involves implementing the proposed cross-section, including the following:

- Lane widths changed to 10.5', center planted medians 12' wide.
- Construct new sidewalks and planting areas, add street furnishings
- Construct planted medians from Dunn Ave. to Logan Ave.
- Construct enhanced crossings and corner bulb-outs.
- Establish new Build to easement for future re-development.

If the City of Cheyenne chooses to implement this cross section design, right-of-way dedication would be necessary.





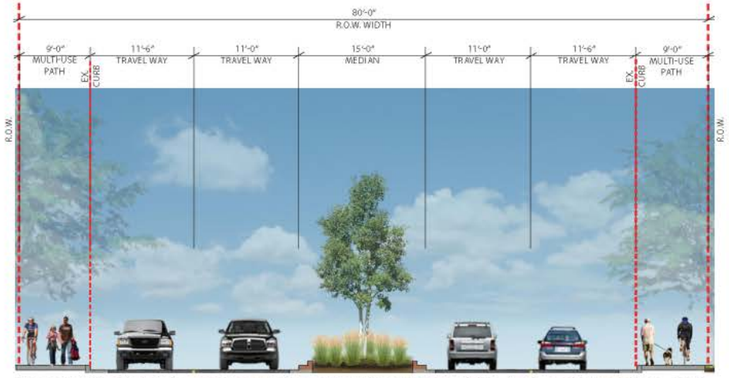
Phase 3 - Maintain curb and gutter, 6' min. sidewalk and 8' min. sidewalk, center median, street trees in tree grates and 10.5' travel lanes.

Aerial View- Looking West along Pershing Boulevard at the intersection of Logan Ave. and Pershing Blvd. w/ gateway monument sign.

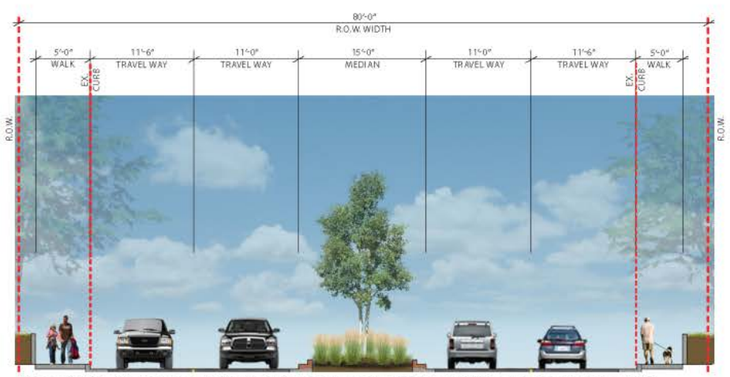
Phase IV – Multi-Use Path/Planted Medians – Evans Ave. to Airport Parkway – $830 K

As the final build-out of the project, this phase involves integrating planted medians/turn lanes from Evans Ave. to Airport Parkway. In addition, multi-use paths are integrated from Evans Ave. to Seymour Ave. Sidewalk widths will remain as existing from Seymour Ave. to Airport Parkway, as these sidewalks are adjacent to the Lake View and Mt. Olivet Cemeteries and require an existing retaining wall to incorporate their current width. Due to the inherent grade change, relocating these retaining walls would involve the loss of existing trees here and would have property impacts to the cemeteries, in addition to being financially unfeasible. It was determined through workshops with City Staff and Public Workshops that walk widths are mostly adequate in their current condition in this area adjacent to the cemeteries.

0 60 120 180
SCALE 1"=60'-0"
NORTH



Phase 4 (A) - Maintain existing curbs and existing lane widths, Add center median. Add new sidewalk extension to existing walk (9' wide multi-use path).



Phase 4 (B) - Maintain existing curbs and existing lane widths, Add center median.

Aerial View- Looking East along Pershing Boulevard at the intersection of Evans Ave. and Pershing Blvd.

Aerial View- Looking West along Pershing Boulevard at the intersection of Airport Pkwy. and Pershing Blvd.

Pershing Boulevard Complete Streets

Phase Four - Aerial View

CONCLUSION

An analysis of Pershing Boulevard from Evans Avenue to Logan Avenue indicates a number of deficiencies in the corridor that keep it from being a complete street that is safe and comfortable for users of all ages and abilities. Given the traffic volume, speed and width of Pershing Boulevard, the corridor lacks the presence of sufficient bicycle and pedestrian facilities. An analysis of the Level of Service reveals that all intersections are operating without significant vehicular operational issues.

The walking audit as well as business interviews identified a need for improved access management, sight line, quality of sidewalks for a better pedestrian experience, and ADA conformity.

Alternatives to address the deficiencies and desires from the community were presented and evaluated by City staff and at the community workshops. It was determined that the roadway width from curb to curb should remain as it is in the current existing condition. On-street bike lanes were seen as a less feasible means of integrating bike facilities, and it was determined that a multi-use pedestrian/bike path in a detached condition that integrates some street trees is most desirable.

The preferred street cross-section involves integrating a detached 6′ walk on the south side of Pershing Blvd. with a 4′ planting buffer, 10′-6″ travel lanes, a 14′ planted median/center turn lane and an 8′ multi-use path on the north side of Pershing Blvd. This multi-use path on the north side will tie into the East Pershing Blvd. constructed condition. Street trees are integrated on the north side of Pershing Blvd. in grates where feasible.

It was determined that the ultimate preferred cross-section should be phased for project implementation and that the first phase should address pedestrian safety. This phase involves integrating a pedestrian crossing at Duff Ave. and Pershing Blvd to facilitate crossing within the heavily used commercial area here. This involves installation of a Rectangular Rapid Flashing Beacon (RRFB) set of signals on either the east or west side of Duff Ave. This involves integrating a 6′ refuge median as well on the west side of Duff Ave. or a 10′ refuge median on the east side of Duff Ave. Restriping lanes to 10′ will be required in either version of this concept.

The costs of implementing and maintaining these longer term improvements identified by the participating members of the community can often be expensive and burdensome to municipalities. As a result, this study breaks out these potential future improvements into phases which can be implemented through a variety of creative public and private funding sources in the future. The intent is however to have a plan or a road map for this area so that if and when funding opportunities arise, the City and community leaders have a vision and corresponding design ideas that they can utilize to move forward.

The City of Cheyenne and the Cheyenne MPO should continue to look for opportunities to fund and implement all four phases of the complete streets preferred concept plan. When redevelopment opportunities arise, the City should work with the developers to incorporate the recommendations in this plan.

Approved as to form only:
Date: 8/17/15

RESOLUTION NO. 5711

ENTITLED: "A RESOLUTION ADOPTING THE *PERSHING BOULEVARD COMPLETE STREETS PLAN.*"

WHEREAS, the average daily traffic along Pershing Boulevard is over 20,000 cars a day; and

WHEREAS, in 2013, concerned citizens and business owners brought the issue of pedestrian safety at the intersection of Pershing Boulevard at Duff Avenue to the attention of the Governing Body; and

WHEREAS, the Cheyenne Metropolitan Planning Organization was tasked with conducting a study of this area to gather additional public input, develop short term pedestrian safety recommendation for the intersection of Pershing Boulevard and Duff Avenue, and long term design ideas to improve safety for all street users in this corridor; and

WHEREAS, the Cheyenne MPO retained Fehr and Peers on February 24, 2014 to assist in producing the *Pershing Boulevard Complete Streets Plan;* and

WHEREAS, the *Pershing Boulevard Complete Streets Plan* applies to Pershing Boulevard between Evans Avenue and Logan Avenue and addresses concerns of the general public, corridor stakeholders, neighborhood businesses, and residents living along Pershing Boulevard; and

WHEREAS, the *Pershing Boulevard Complete Streets Plan* has a short term goal of improving pedestrian safety at the intersection of Pershing Boulevard and Duff Avenue and a long term goal of providing "complete streets" designed to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities; and

WHEREAS, the *Pershing Boulevard Complete Streets Plan* also identifies long term street design and revitalization strategies to unite the business and residential areas into a distinct and recognizable district; and

WHEREAS, the City of Cheyenne Planning Commission held a Public Meeting on August 17, 2015, accepted public comments, and recommended that the Governing Body of the City of Cheyenne approve the *Pershing Boulevard Complete Streets Plan*; and

WHEREAS, the Cheyenne MPO Citizen's Advisory and Technical Committee reviewed the Plan and recommended adoption.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF CHEYENNE, WYOMING:

THAT, the *Pershing Boulevard Complete Streets Plan* dated August 2015, is hereby approved as a guide for future improvements to the Pershing Boulevard corridor.

PRESENTED, READ AND ADOPTED THIS 14th **DAY OF** September **2015.**

Richard L. Kaysen, Mayor
City of Cheyenne

(Seal)

ATTEST:

Carol Intlekofer, City Clerk

APPENDIX A: INTERSECTION LEVEL OF SERVICE ANALYSIS

AM

HCM Signalized Intersection Capacity Analysis
1: Evans Ave & Pershing Blvd

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	425	66	69	422	227	15	48	22	105	59	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.7		3.0	3.7	3.7	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3468		1770	3539	1583	1770	1774		3433	1827	
Flt Permitted	0.47	1.00		0.36	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	881	3468		680	3539	1583	1770	1774		3433	1827	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	16	494	77	80	491	264	17	56	26	122	69	10
RTOR Reduction (vph)	0	18	0	0	0	129	0	22	0	0	8	0
Lane Group Flow (vph)	16	553	0	80	491	135	17	60	0	122	71	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	28.2	27.0		33.0	29.4	29.4	1.2	6.9		5.0	10.7	
Effective Green, g (s)	30.6	28.2		35.4	30.6	30.6	2.4	8.1		6.2	11.9	
Actuated g/C Ratio	0.51	0.47		0.59	0.51	0.51	0.04	0.13		0.10	0.20	
Clearance Time (s)	4.2	4.9		4.2	4.9	4.9	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	484	1629		488	1804	807	70	239		354	362	
v/s Ratio Prot	0.00	c0.16		c0.01	0.14		0.01	0.03		c0.04	c0.04	
v/s Ratio Perm	0.02			0.08		0.09						
v/c Ratio	0.03	0.34		0.16	0.27	0.17	0.24	0.25		0.34	0.20	
Uniform Delay, d1	7.3	10.0		5.5	8.4	7.9	27.9	23.2		25.0	20.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.6		0.2	0.4	0.4	2.5	0.7		0.8	0.4	
Delay (s)	7.3	10.6		5.7	8.7	8.3	30.4	24.0		25.8	20.4	
Level of Service	A	B		A	A	A	C	C		C	C	
Approach Delay (s)		10.5			8.3			25.1			23.7	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.7
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	546	9	10	720	13	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	635	10	12	837	15	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	380					
pX, platoon unblocked			0.93		0.93	0.93
vC, conflicting volume			645		1082	323
vC1, stage 1 conf vol					640	
vC2, stage 2 conf vol					442	
vCu, unblocked vol			462		932	114
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1016		458	851

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	423	222	12	419	419	22
Volume Left	0	0	12	0	0	15
Volume Right	0	10	0	0	0	7
cSH	1700	1700	1016	1700	1700	536
Volume to Capacity	0.25	0.13	0.01	0.25	0.25	0.04
Queue Length 95th (ft)	0	0	1	0	0	3
Control Delay (s)	0.0	0.0	8.6	0.0	0.0	12.0
Lane LOS			A			B
Approach Delay (s)	0.0		0.1			12.0
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	528	13	3	719	6	4	0	7	6	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	8	614	15	3	836	7	5	0	8	7	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		753										
pX, platoon unblocked				0.99			0.99	0.99	0.99	0.99	0.99	
vC, conflicting volume	843			629			1071	1488	315	1178	1492	422
vC1, stage 1 conf vol							638	638		847	847	
vC2, stage 2 conf vol							433	850		331	645	
vCu, unblocked vol	843			599			1046	1468	280	1155	1473	422
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	100	99	98	100	99
cM capacity (veh/h)	789			962			372	305	708	301	307	581

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	8	409	220	3	557	286	13	15
Volume Left	8	0	0	3	0	0	5	7
Volume Right	0	0	15	0	0	7	8	8
cSH	789	1700	1700	962	1700	1700	533	406
Volume to Capacity	0.01	0.24	0.13	0.00	0.33	0.17	0.02	0.04
Queue Length 95th (ft)	1	0	0	0	0	0	2	3
Control Delay (s)	9.6	0.0	0.0	8.8	0.0	0.0	11.9	14.2
Lane LOS	A			A			B	B
Approach Delay (s)	0.1			0.0			11.9	14.2
Approach LOS							B	B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	509	26	34	718	2	8	2	26	3	2	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	1	592	30	40	835	2	9	2	30	3	2	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		1112			1264							
pX, platoon unblocked												
vC, conflicting volume	837			622			1108	1526	311	1245	1540	419
vC1, stage 1 conf vol							609	609		915	915	
vC2, stage 2 conf vol							499	916		330	624	
vCu, unblocked vol	837			622			1108	1526	311	1245	1540	419
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			97	99	96	99	99	100
cM capacity (veh/h)	793			955			357	286	685	262	279	583

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1	395	228	40	557	281	42	7
Volume Left	1	0	0	40	0	0	9	3
Volume Right	0	0	30	0	0	2	30	1
cSH	793	1700	1700	955	1700	1700	534	295
Volume to Capacity	0.00	0.23	0.13	0.04	0.33	0.17	0.08	0.02
Queue Length 95th (ft)	0	0	0	3	0	0	6	2
Control Delay (s)	9.5	0.0	0.0	8.9	0.0	0.0	12.3	17.5
Lane LOS	A			A			B	C
Approach Delay (s)	0.0			0.4			12.3	17.5
Approach LOS							B	C

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	36.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	417	61	25	596	3	80	24	18	1	20	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00		1.00	0.94		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3471		1770	3537		1770	3312		1770	3112	
Flt Permitted	0.35	1.00		0.44	1.00		0.68	1.00		0.72	1.00	
Satd. Flow (perm)	656	3471		827	3537		1262	3312		1347	3112	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	64	485	71	29	693	3	93	28	21	1	23	95
RTOR Reduction (vph)	0	11	0	0	0	0	0	18	0	0	82	0
Lane Group Flow (vph)	64	545	0	29	696	0	93	31	0	1	36	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	49.4	46.0		46.8	44.7		8.6	8.6		8.6	8.6	
Effective Green, g (s)	51.8	47.9		49.2	46.6		9.8	9.8		9.8	9.8	
Actuated g/C Ratio	0.74	0.68		0.70	0.67		0.14	0.14		0.14	0.14	
Clearance Time (s)	4.2	4.9		4.2	4.9		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	558	2375		625	2354		176	463		188	435	
v/s Ratio Prot	c0.01	0.16		0.00	c0.20			0.01			0.01	
v/s Ratio Perm	0.08			0.03			c0.07			0.00		
v/c Ratio	0.11	0.23		0.05	0.30		0.53	0.07		0.01	0.08	
Uniform Delay, d1	2.6	4.1		3.1	4.9		28.0	26.1		25.9	26.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2		0.0	0.3		1.3	0.0		0.0	0.0	
Delay (s)	2.6	4.4		3.2	5.2		29.3	26.2		25.9	26.2	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		4.2			5.1			28.2			26.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	430	5	1	616	1	7	0	8	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	2	500	6	1	716	1	8	0	9	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		275										
pX, platoon unblocked				0.96			0.96	0.96	0.96	0.96	0.96	
vC, conflicting volume	717			506			868	1227	253	983	1230	359
vC1, stage 1 conf vol							508	508		719	719	
vC2, stage 2 conf vol							360	720		264	510	
vCu, unblocked vol	717			408			784	1158	145	904	1160	359
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			98	100	99	100	100	100
cM capacity (veh/h)	879			1104			474	372	843	366	372	638

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2	333	172	1	478	240	17	0
Volume Left	2	0	0	1	0	0	8	0
Volume Right	0	0	6	0	0	1	9	0
cSH	879	1700	1700	1104	1700	1700	619	1700
Volume to Capacity	0.00	0.20	0.10	0.00	0.28	0.14	0.03	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	2	0
Control Delay (s)	9.1	0.0	0.0	8.3	0.0	0.0	11.0	0.0
Lane LOS	A			A			B	A
Approach Delay (s)	0.0			0.0			11.0	0.0
Approach LOS							B	A

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	27.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	405	24	16	595	12	5	0	8	4	2	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	6	471	28	19	692	14	6	0	9	5	2	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		618										
pX, platoon unblocked												
vC, conflicting volume	706			499			899	1240	249	992	1247	353
vC1, stage 1 conf vol							497	497		736	736	
vC2, stage 2 conf vol							403	743		256	510	
vCu, unblocked vol	706			499			899	1240	249	992	1247	353
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			99	100	99	99	99	97
cM capacity (veh/h)	888			1061			422	351	750	347	350	643

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	6	314	185	19	461	245	15	26
Volume Left	6	0	0	19	0	0	6	5
Volume Right	0	0	28	0	0	14	9	19
cSH	888	1700	1700	1061	1700	1700	578	522
Volume to Capacity	0.01	0.18	0.11	0.02	0.27	0.14	0.03	0.05
Queue Length 95th (ft)	0	0	0	1	0	0	2	4
Control Delay (s)	9.1	0.0	0.0	8.5	0.0	0.0	11.4	12.2
Lane LOS	A			A			B	B
Approach Delay (s)	0.1			0.2			11.4	12.2
Approach LOS							B	B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	5	404	608	3	12	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	6	470	707	3	14	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		898				
pX, platoon unblocked						
vC, conflicting volume	710				955	355
vC1, stage 1 conf vol					709	
vC2, stage 2 conf vol					247	
vCu, unblocked vol	710				955	355
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	95
cM capacity (veh/h)	885				420	641

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	6	235	235	471	239	47
Volume Left	6	0	0	0	0	14
Volume Right	0	0	0	0	3	33
cSH	885	1700	1700	1700	1700	554
Volume to Capacity	0.01	0.14	0.14	0.28	0.14	0.08
Queue Length 95th (ft)	0	0	0	0	0	7
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	12.1
Lane LOS	A					B
Approach Delay (s)	0.1			0.0		12.1
Approach LOS						B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	405	11	7	599	12	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	471	13	8	697	14	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1003					
pX, platoon unblocked						
vC, conflicting volume			484		842	242
vC1, stage 1 conf vol					477	
vC2, stage 2 conf vol					365	
vCu, unblocked vol			484		842	242
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1075		503	759

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	314	170	8	348	348	21
Volume Left	0	0	8	0	0	14
Volume Right	0	13	0	0	0	7
cSH	1700	1700	1075	1700	1700	567
Volume to Capacity	0.18	0.10	0.01	0.20	0.20	0.04
Queue Length 95th (ft)	0	0	1	0	0	3
Control Delay (s)	0.0	0.0	8.4	0.0	0.0	11.6
Lane LOS			A			B
Approach Delay (s)	0.0		0.1			11.6
Approach LOS						B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	403	592	3	9	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	7	469	688	3	10	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		1199	1167			
pX, platoon unblocked						
vC, conflicting volume	692				938	346
vC1, stage 1 conf vol					690	
vC2, stage 2 conf vol					248	
vCu, unblocked vol	692				938	346
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	96
cM capacity (veh/h)	899				429	650

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	7	234	234	459	233	34
Volume Left	7	0	0	0	0	10
Volume Right	0	0	0	0	3	23
cSH	899	1700	1700	1700	1700	560
Volume to Capacity	0.01	0.14	0.14	0.27	0.14	0.06
Queue Length 95th (ft)	1	0	0	0	0	5
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	11.8
Lane LOS	A					B
Approach Delay (s)	0.1			0.0		11.8
Approach LOS						B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	409	6	5	587	7	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	476	7	6	683	8	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				990		
pX, platoon unblocked						
vC, conflicting volume			483		832	241
vC1, stage 1 conf vol					479	
vC2, stage 2 conf vol					353	
vCu, unblocked vol			483		832	241
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	99
cM capacity (veh/h)			1076		507	760

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	317	166	6	341	341	19
Volume Left	0	0	6	0	0	8
Volume Right	0	7	0	0	0	10
cSH	1700	1700	1076	1700	1700	623
Volume to Capacity	0.19	0.10	0.01	0.20	0.20	0.03
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	8.4	0.0	0.0	11.0
Lane LOS			A			B
Approach Delay (s)	0.0		0.1			11.0
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	374	7	3	571	24	9	0	5	3	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	45	435	8	3	664	28	10	0	6	3	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					600							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	692			443			880	1228	222	999	1219	346
vC1, stage 1 conf vol							530	530		685	685	
vC2, stage 2 conf vol							351	699		314	534	
vCu, unblocked vol	659			443			850	1203	222	970	1193	308
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			97	100	99	99	100	98
cM capacity (veh/h)	912			1113			417	342	782	375	364	678

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	45	290	153	3	443	249	16	15
Volume Left	45	0	0	3	0	0	10	3
Volume Right	0	0	8	0	0	28	6	12
cSH	912	1700	1700	1113	1700	1700	500	571
Volume to Capacity	0.05	0.17	0.09	0.00	0.26	0.15	0.03	0.03
Queue Length 95th (ft)	4	0	0	0	0	0	3	2
Control Delay (s)	9.2	0.0	0.0	8.2	0.0	0.0	12.4	11.5
Lane LOS	A			A			B	B
Approach Delay (s)	0.8			0.0			12.4	11.5
Approach LOS							B	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	33.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	294	130	82	510	121	31
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	3.4	3.4	3.4	3.4	3.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	2980	1333	1490	2980	2820	
Flt Permitted	1.00	1.00	0.53	1.00	0.96	
Satd. Flow (perm)	2980	1333	827	2980	2820	
Peak-hour factor, PHF	0.81	0.81	0.79	0.88	0.84	0.81
Adj. Flow (vph)	363	160	104	580	144	38
RTOR Reduction (vph)	0	76	0	0	32	0
Lane Group Flow (vph)	363	84	104	580	150	0
Confl. Peds. (#/hr)						3
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2 4		1	6	8	
Permitted Phases		2 4	2 4			
Actuated Green, G (s)	33.6	33.6	41.2	30.4	9.9	
Effective Green, g (s)	36.6	36.6	45.7	31.9	11.1	
Actuated g/C Ratio	0.52	0.52	0.65	0.46	0.16	
Clearance Time (s)			4.9	4.9	4.2	
Vehicle Extension (s)			3.0	4.0	4.0	
Lane Grp Cap (vph)	1558	696	626	1358	447	
v/s Ratio Prot	c0.12		c0.02	c0.19	c0.05	
v/s Ratio Perm		0.06	0.09			
v/c Ratio	0.23	0.12	0.17	0.43	0.34	
Uniform Delay, d1	9.1	8.5	5.0	12.9	26.2	
Progression Factor	0.13	0.01	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1	1.0	0.6	
Delay (s)	1.3	0.2	5.2	13.9	26.8	
Level of Service	A	A	A	B	C	
Approach Delay (s)	0.9			12.5	26.8	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.7
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	14	355	557	76	69	57
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	3.4	3.4	3.4		3.7	3.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1490	2980	2921		1490	1300
Flt Permitted	0.36	1.00	1.00		0.95	1.00
Satd. Flow (perm)	563	2980	2921		1490	1300
Peak-hour factor, PHF	0.74	0.84	0.91	0.97	0.68	0.80
Adj. Flow (vph)	19	423	612	78	101	71
RTOR Reduction (vph)	0	0	13	0	0	60
Lane Group Flow (vph)	19	423	677	0	101	11
Confl. Peds. (#/hr)				4		11
Turn Type	D.P+P	NA	NA		Prot	Perm
Protected Phases	5	2	6 8		4	
Permitted Phases	6 8					4
Actuated Green, G (s)	45.7	24.0	44.5		9.6	9.6
Effective Green, g (s)	46.0	25.5	43.3		10.8	10.6
Actuated g/C Ratio	0.66	0.36	0.62		0.15	0.15
Clearance Time (s)	4.9	4.9			4.9	4.9
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	405	1085	1806		229	196
v/s Ratio Prot	c0.00	c0.14	c0.23		c0.07	
v/s Ratio Perm	0.03					0.01
v/c Ratio	0.05	0.39	0.37		0.44	0.05
Uniform Delay, d1	5.5	16.5	6.6		26.9	25.4
Progression Factor	1.00	1.00	0.15		1.00	1.00
Incremental Delay, d2	0.1	1.1	0.2		1.8	0.2
Delay (s)	5.6	17.5	1.2		28.7	25.6
Level of Service	A	B	A		C	C
Approach Delay (s)		17.0	1.2		27.4	
Approach LOS		B	A		C	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.7
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

PM

HCM Signalized Intersection Capacity Analysis
1: Evans Ave & Pershing Blvd

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	570	19	28	422	254	33	120	68	210	40	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3522		1770	3539	1583	1770	1762		3433	1761	
Flt Permitted	0.40	1.00		0.28	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	752	3522		522	3539	1583	1770	1762		3433	1761	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	26	663	22	33	491	295	38	140	79	244	47	27
RTOR Reduction (vph)	0	4	0	0	0	184	0	32	0	0	19	0
Lane Group Flow (vph)	26	681	0	33	491	111	38	187	0	244	55	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	23.6	21.3		23.6	21.3	21.3	2.3	11.8		7.8	17.3	
Effective Green, g (s)	26.0	22.5		26.0	22.5	22.5	3.5	13.0		9.0	18.5	
Actuated g/C Ratio	0.43	0.38		0.43	0.38	0.38	0.06	0.22		0.15	0.31	
Clearance Time (s)	4.2	4.2		4.2	4.2	4.2	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	385	1320		299	1327	593	103	381		514	542	
v/s Ratio Prot	0.00	c0.19		c0.01	0.14		0.02	c0.11		c0.07	0.03	
v/s Ratio Perm	0.03			0.04		0.07						
v/c Ratio	0.07	0.52		0.11	0.37	0.19	0.37	0.49		0.47	0.10	
Uniform Delay, d1	9.9	14.5		10.2	13.6	12.6	27.2	20.6		23.3	14.8	
Progression Factor	1.00	1.00		1.76	1.65	4.59	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.4		0.2	0.8	0.7	3.0	1.4		0.9	0.1	
Delay (s)	10.0	16.0		18.1	23.2	58.5	30.2	22.0		24.3	14.9	
Level of Service	A	B		B	C	E	C	C		C	B	
Approach Delay (s)		15.8			35.7			23.2			22.1	
Approach LOS		B			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	831	22	16	680	11	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	966	26	19	791	13	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	380					
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			992		1412	496
vC1, stage 1 conf vol					979	
vC2, stage 2 conf vol					433	
vCu, unblocked vol			661		1150	83
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	97
cM capacity (veh/h)			793		363	824

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	644	348	19	395	395	35
Volume Left	0	0	19	0	0	13
Volume Right	0	26	0	0	0	22
cSH	1700	1700	793	1700	1700	562
Volume to Capacity	0.38	0.20	0.02	0.23	0.23	0.06
Queue Length 95th (ft)	0	0	2	0	0	5
Control Delay (s)	0.0	0.0	9.7	0.0	0.0	11.8
Lane LOS			A			B
Approach Delay (s)	0.0		0.2			11.8
Approach LOS						B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Maxwell Ave & Pershing Blvd

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	851	10	5	705	1	9	0	11	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	1	990	12	6	820	1	10	0	13	0	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		753										
pX, platoon unblocked				0.89			0.89	0.89	0.89	0.89	0.89	
vC, conflicting volume	821			1001			1424	1830	501	1342	1835	410
vC1, stage 1 conf vol							998	998		832	832	
vC2, stage 2 conf vol							426	833		510	1003	
vCu, unblocked vol	821			747			1223	1681	183	1131	1687	410
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	100	98	100	100	99
cM capacity (veh/h)	804			760			295	271	735	304	268	590

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1	660	341	6	547	274	23	5
Volume Left	1	0	0	6	0	0	10	0
Volume Right	0	0	12	0	0	1	13	5
cSH	804	1700	1700	760	1700	1700	440	590
Volume to Capacity	0.00	0.39	0.20	0.01	0.32	0.16	0.05	0.01
Queue Length 95th (ft)	0	0	0	1	0	0	4	1
Control Delay (s)	9.5	0.0	0.0	9.8	0.0	0.0	13.6	11.1
Lane LOS	A			A			B	B
Approach Delay (s)	0.0			0.1			13.6	11.1
Approach LOS							B	B

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	38.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	851	22	19	689	2	16	2	57	1	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	1	990	26	22	801	2	19	2	66	1	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		1112			1264							
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	803			1015			1452	1852	508	1411	1864	402
vC1, stage 1 conf vol							1005	1005		847	847	
vC2, stage 2 conf vol							447	848		565	1017	
vCu, unblocked vol	803			870			1339	1769	326	1295	1781	402
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			93	99	89	100	100	100
cM capacity (veh/h)	816			718			266	255	625	270	244	598

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1	660	355	22	534	269	87	3
Volume Left	1	0	0	22	0	0	19	1
Volume Right	0	0	26	0	0	2	66	2
cSH	816	1700	1700	718	1700	1700	471	426
Volume to Capacity	0.00	0.39	0.21	0.03	0.31	0.16	0.19	0.01
Queue Length 95th (ft)	0	0	0	2	0	0	17	1
Control Delay (s)	9.4	0.0	0.0	10.2	0.0	0.0	14.4	13.5
Lane LOS	A			B			B	B
Approach Delay (s)	0.0			0.3			14.4	13.5
Approach LOS							B	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	36.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	767	44	29	559	11	98	46	42	7	31	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	1.00		1.00	0.93		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3511		1770	3529		1770	3284		1770	3179	
Flt Permitted	0.33	1.00		0.27	1.00		0.68	1.00		0.69	1.00	
Satd. Flow (perm)	606	3511		511	3529		1269	3284		1281	3179	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	105	892	51	34	650	13	114	53	49	8	36	76
RTOR Reduction (vph)	0	5	0	0	2	0	0	40	0	0	62	0
Lane Group Flow (vph)	105	938	0	34	661	0	114	62	0	8	50	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	39.7	34.0		33.5	30.9		10.1	10.1		10.1	10.1	
Effective Green, g (s)	42.0	35.9		35.9	32.8		11.3	11.3		11.3	11.3	
Actuated g/C Ratio	0.70	0.60		0.60	0.55		0.19	0.19		0.19	0.19	
Clearance Time (s)	4.2	4.9		4.2	4.9		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	558	2100		385	1929		238	618		241	598	
v/s Ratio Prot	c0.02	c0.27		0.01	0.19			0.02			0.02	
v/s Ratio Perm	0.11			0.05			c0.09			0.01		
v/c Ratio	0.19	0.45		0.09	0.34		0.48	0.10		0.03	0.08	
Uniform Delay, d1	3.3	6.6		5.0	7.6		21.7	20.1		19.9	20.1	
Progression Factor	1.16	0.97		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.6		0.1	0.5		2.1	0.1		0.1	0.1	
Delay (s)	4.0	7.0		5.2	8.1		23.8	20.2		20.0	20.2	
Level of Service	A	A		A	A		C	C		B	C	
Approach Delay (s)		6.7			7.9			22.1			20.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	824	11	6	590	0	3	0	7	2	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	0	958	13	7	686	0	3	0	8	2	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		275										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	686			971			1325	1665	485	1187	1671	343
vC1, stage 1 conf vol							965	965		700	700	
vC2, stage 2 conf vol							360	700		487	971	
vCu, unblocked vol	686			635			1048	1443	69	887	1451	343
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	99	99	100	99
cM capacity (veh/h)	904			810			338	310	840	369	306	653

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	639	332	7	457	229	12	6
Volume Left	0	0	0	7	0	0	3	2
Volume Right	0	0	13	0	0	0	8	3
cSH	1700	1700	1700	810	1700	1700	581	499
Volume to Capacity	0.00	0.38	0.20	0.01	0.27	0.13	0.02	0.01
Queue Length 95th (ft)	0	0	0	1	0	0	2	1
Control Delay (s)	0.0	0.0	0.0	9.5	0.0	0.0	11.3	12.3
Lane LOS				A			B	B
Approach Delay (s)	0.0			0.1			11.3	12.3
Approach LOS							B	B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	765	17	12	554	19	9	1	21	14	0	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	26	890	20	14	644	22	10	1	24	16	0	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		618										
pX, platoon unblocked				0.89			0.89	0.89	0.89	0.89	0.89	
vC, conflicting volume	666			909			1328	1645	455	1204	1644	333
vC1, stage 1 conf vol							951	951		683	683	
vC2, stage 2 conf vol							378	694		521	960	
vCu, unblocked vol	666			656			1126	1480	146	986	1479	333
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			97	100	97	95	100	96
cM capacity (veh/h)	919			827			305	291	780	356	291	663

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	26	593	316	14	429	237	36	44
Volume Left	26	0	0	14	0	0	10	16
Volume Right	0	0	20	0	0	22	24	28
cSH	919	1700	1700	827	1700	1700	518	503
Volume to Capacity	0.03	0.35	0.19	0.02	0.25	0.14	0.07	0.09
Queue Length 95th (ft)	2	0	0	1	0	0	6	7
Control Delay (s)	9.0	0.0	0.0	9.4	0.0	0.0	12.5	12.8
Lane LOS	A			A			B	B
Approach Delay (s)	0.2			0.2			12.5	12.8
Approach LOS							B	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	31.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	18	833	648	17	10	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	21	969	753	20	12	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		898				
pX, platoon unblocked					0.94	
vC, conflicting volume	773				1290	387
vC1, stage 1 conf vol					763	
vC2, stage 2 conf vol					526	
vCu, unblocked vol	773				1181	387
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	97
cM capacity (veh/h)	838				369	612

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	21	484	484	502	271	29
Volume Left	21	0	0	0	0	12
Volume Right	0	0	0	0	20	17
cSH	838	1700	1700	1700	1700	484
Volume to Capacity	0.02	0.28	0.28	0.30	0.16	0.06
Queue Length 95th (ft)	2	0	0	0	0	5
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	12.9
Lane LOS	A					B
Approach Delay (s)	0.2			0.0		12.9
Approach LOS						B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	754	15	10	565	23	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	877	17	12	657	27	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1003					
pX, platoon unblocked			1.00		1.00	1.00
vC, conflicting volume			894		1237	447
vC1, stage 1 conf vol					885	
vC2, stage 2 conf vol					352	
vCu, unblocked vol			889		1233	441
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		92	96
cM capacity (veh/h)			756		337	562

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	584	310	12	328	328	48
Volume Left	0	0	12	0	0	27
Volume Right	0	17	0	0	0	21
cSH	1700	1700	756	1700	1700	409
Volume to Capacity	0.34	0.18	0.02	0.19	0.19	0.12
Queue Length 95th (ft)	0	0	1	0	0	10
Control Delay (s)	0.0	0.0	9.8	0.0	0.0	15.0
Lane LOS			A			B
Approach Delay (s)	0.0		0.2			15.0
Approach LOS						B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	28	756	564	8	6	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	33	879	656	9	7	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		1199	1167			
pX, platoon unblocked						
vC, conflicting volume	665				1165	333
vC1, stage 1 conf vol					660	
vC2, stage 2 conf vol					505	
vCu, unblocked vol	665				1165	333
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				98	98
cM capacity (veh/h)	920				389	663

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	33	440	440	437	228	21
Volume Left	33	0	0	0	0	7
Volume Right	0	0	0	0	9	14
cSH	920	1700	1700	1700	1700	537
Volume to Capacity	0.04	0.26	0.26	0.26	0.13	0.04
Queue Length 95th (ft)	3	0	0	0	0	3
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	12.0
Lane LOS	A					B
Approach Delay (s)	0.3			0.0		12.0
Approach LOS						B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	756	12	10	577	1	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	879	14	12	671	1	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				990		
pX, platoon unblocked						
vC, conflicting volume			893		1245	447
vC1, stage 1 conf vol					886	
vC2, stage 2 conf vol					359	
vCu, unblocked vol			893		1245	447
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	98
cM capacity (veh/h)			755		335	559

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	586	307	12	335	335	15
Volume Left	0	0	12	0	0	1
Volume Right	0	14	0	0	0	14
cSH	1700	1700	755	1700	1700	532
Volume to Capacity	0.34	0.18	0.02	0.20	0.20	0.03
Queue Length 95th (ft)	0	0	1	0	0	2
Control Delay (s)	0.0	0.0	9.8	0.0	0.0	12.0
Lane LOS			A			B
Approach Delay (s)	0.0		0.2			12.0
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	743	9	8	519	8	6	0	7	13	1	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	14	864	10	9	603	9	7	0	8	15	1	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					600							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	613			874			1285	1528	437	1095	1529	306
vC1, stage 1 conf vol							897	897		627	627	
vC2, stage 2 conf vol							388	631		468	902	
vCu, unblocked vol	590			874			1269	1514	437	1076	1515	280
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			97	100	99	96	100	90
cM capacity (veh/h)	972			767			268	292	567	363	289	710

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	14	576	298	9	402	210	15	84
Volume Left	14	0	0	9	0	0	7	15
Volume Right	0	0	10	0	0	9	8	67
cSH	972	1700	1700	767	1700	1700	375	595
Volume to Capacity	0.01	0.34	0.18	0.01	0.24	0.12	0.04	0.14
Queue Length 95th (ft)	1	0	0	1	0	0	3	12
Control Delay (s)	8.8	0.0	0.0	9.7	0.0	0.0	15.0	12.0
Lane LOS	A			A			C	B
Approach Delay (s)	0.1			0.1			15.0	12.0
Approach LOS							C	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	32.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	579	164	39	394	173	47
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	3.4	3.4	3.4	3.4	3.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	2980	1333	1490	2980	2816	
Flt Permitted	1.00	1.00	0.33	1.00	0.96	
Satd. Flow (perm)	2980	1333	523	2980	2816	
Peak-hour factor, PHF	0.81	0.81	0.79	0.88	0.84	0.81
Adj. Flow (vph)	715	202	49	448	206	58
RTOR Reduction (vph)	0	86	0	0	34	0
Lane Group Flow (vph)	715	116	49	448	230	0
Confl. Peds. (#/hr)						3
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2 4		1	6	8	
Permitted Phases		2 4	2 4			
Actuated Green, G (s)	43.0	43.0	46.7	28.1	14.4	
Effective Green, g (s)	46.0	46.0	51.2	29.6	15.6	
Actuated g/C Ratio	0.58	0.58	0.64	0.37	0.19	
Clearance Time (s)			4.9	4.9	4.2	
Vehicle Extension (s)			3.0	4.0	4.0	
Lane Grp Cap (vph)	1713	766	397	1102	549	
v/s Ratio Prot	c0.24		c0.01	0.15	c0.08	
v/s Ratio Perm		0.09	0.07			
v/c Ratio	0.42	0.15	0.12	0.41	0.42	
Uniform Delay, d1	9.5	7.9	8.1	18.7	28.2	
Progression Factor	0.13	0.17	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.1	0.1	1.1	0.7	
Delay (s)	1.4	1.4	8.2	19.8	28.9	
Level of Service	A	A	A	B	C	
Approach Delay (s)	1.4			18.7	28.9	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.7
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	69	669	489	61	70	33
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	3.4	3.4	3.4		3.7	3.9
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1490	2980	2924		1490	1297
Flt Permitted	0.39	1.00	1.00		0.95	1.00
Satd. Flow (perm)	609	2980	2924		1490	1297
Peak-hour factor, PHF	0.74	0.84	0.91	0.97	0.68	0.80
Adj. Flow (vph)	93	796	537	63	103	41
RTOR Reduction (vph)	0	0	12	0	0	34
Lane Group Flow (vph)	93	796	588	0	103	7
Confl. Peds. (#/hr)				4		11
Turn Type	D.P+P	NA	NA		Prot	Perm
Protected Phases	5	2	6 8		4	
Permitted Phases	6 8					4
Actuated Green, G (s)	52.6	30.3	46.7		12.7	12.7
Effective Green, g (s)	52.9	31.8	45.5		13.9	13.7
Actuated g/C Ratio	0.66	0.40	0.57		0.17	0.17
Clearance Time (s)	4.9	4.9			4.9	4.9
Vehicle Extension (s)	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	484	1184	1663		258	222
v/s Ratio Prot	c0.02	c0.27	c0.20		c0.07	
v/s Ratio Perm	0.11					0.01
v/c Ratio	0.19	0.67	0.35		0.40	0.03
Uniform Delay, d1	7.0	19.8	9.3		29.3	27.6
Progression Factor	1.00	1.00	0.10		1.00	1.00
Incremental Delay, d2	0.3	3.1	0.2		1.4	0.1
Delay (s)	7.3	22.9	1.1		30.7	27.7
Level of Service	A	C	A		C	C
Approach Delay (s)		21.2	1.1		29.9	
Approach LOS		C	A		C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.7
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

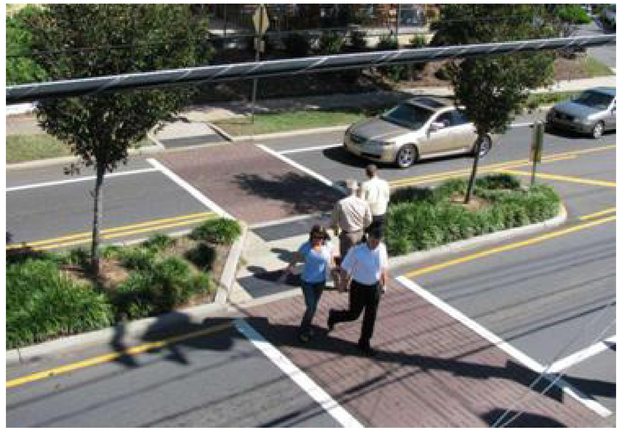
c Critical Lane Group

APPENDIX B: PLACE MAKING CONCEPTS

Placemaking Elements - Roadway Treatments

Medians for human scale

Gateway monuments

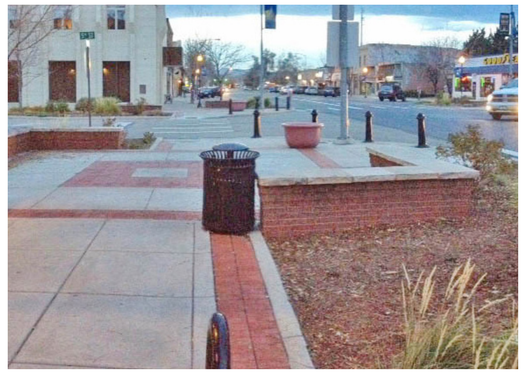


Median as pedestrian refuge

Placemaking Elements - Streetscape

Ground floor activation

Benches



Tree grates and guards

Seat Walls

FEHR PEERS russell+mills studios MPO

Placemaking Elements - Streetscape

Stained colored concrete

Concrete pavers

Colored concrete w/sandblasted pattern

Pavers at intersections

Patterned colored concrete

Pavement

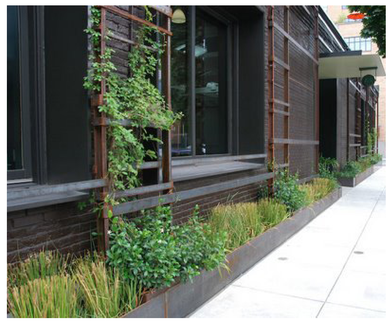
Fixed Hanging Baskets

Painted for safety

Colored/textured concrete crosswalk

Pavement - Crosswalks

Stamped asphalt crosswalk



Planters

FEHR PEERS russell+mills studios

Placemaking Elements - Streetscape

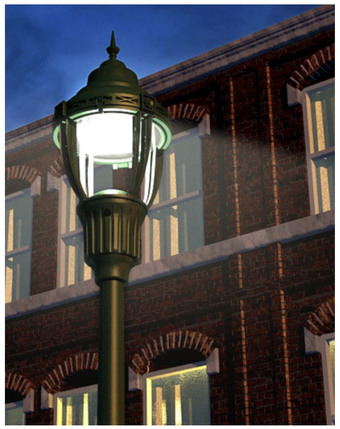
Planting options

Median Lights

Banners on Lights

Historic Lighting

Historic Lighting



Historic Lighting

Street/Pedestrian combination

Street/Pedestrian lighting - full cut-off LED

APPENDIX C: COMMENTS

Business Comments

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Four Winds Bar & Lounge

What is your business address? _____

How many employees does your business currently have? 12-15

How long have you been in your current location? '76

When do your employees work? What are your typical shifts? 6am-2am - 3 shifts.

Please estimate the number of employees who commute to work using the following methods:

Drive 92%
Walk _____
Bike _____
Transit 8%
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive ~~100%~~ 98%
Walk _____
Bike _____
Transit 2%
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints?

No Access Issues – Central Location
– Tough to get in/out due to Speed. –

What transportation improvement(s) would be most helpful for your business?

- Bike Lane Along Pershing.
- Sidewalks – Pedestrian Safety.
- Maybe 1 side – South – Bike Lane.
- Consolidated separate parking for Strip.
- Speed Control/Enforcement.

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing?

Indirect Benefit. – Lighting not needed.
Crossing @ Duff – Signal possible. – Cars/Pedestrians.
Traffic Calming – Chicanes possible.

Do you have any additional transportation concerns or comments that you would like to share?

– Speed limit
– Money / Parkway Could be Bike.
– Site line issues – trees/shrubs
– Supportive of District. →
Olivet District. Olivet Addition.
– Bike Racks Needed...

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

Michelle McMahon.

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Frontier Access by Mobility - Regional Business.

What is your business address? _____

How many employees does your business currently have? 14-15

How long have you been in your current location? 2002

When do your employees work? What are your typical shifts? 8-5 M-F
8-NOON SAT.

Please estimate the number of employees who commute to work using the following methods:

Drive 98%
Walk _____
Bike 2%
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 95%
Walk _____
Bike _____
Transit 5%
Other _____

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints?

- Minimal complaints.
- Instruct customers to go to light for left turn.

What transportation improvement(s) would be most helpful for your business?

- Relocate Bus Stop nearby
- Traffic Light / Signal // Audible.
- Traffic Calming - Speed limit issues.
- Education / outreach - articles in newspapers.

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing?

- Sidewalk widths adequate
- Vacant

Do you have any additional transportation concerns or comments that you would like to share?

- Uses car to get to DQ.
- Site Distances @ intersections
- Light @ intersection
- Audible Crosswalk.
- Vacant Buildings - Need to address.

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

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Richard Lennox - Owner

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Lennox Enterprises

What is your business address? _____

How many employees does your business currently have? 8

How long have you been in your current location? 8 years

When do your employees work? What are your typical shifts? 7-5 m-f.

Please estimate the number of employees who commute to work using the following methods:

Drive 88%
Walk _____
Bike 12%
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 90%
Walk 5%
Bike ~~5~~ 5%, 3 summer
Transit _____
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints?

Getting across Pershing biggest issue

What transportation improvement(s) would be most helpful for your business?

- Crosswalk nearby is needed. - yellow flasher
- Bike path could be an improvement
- Traffic Calming. → could help "business rush hour"
- Turning is an issue

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing?

- Yes, Wider Sidewalks would help.

Do you have any additional transportation concerns or comments that you would like to share?

- Speed issues
- Screeching Brakes

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Hoy's Drug Store

What is your business address? _____

How many employees does your business currently have? ~~4~~ 20 employees

How long have you been in your current location? 1957 or '52

When do your employees work? What are your typical shifts? 8am - 7pm weekdays. 9am - 3pm Sat.

Please estimate the number of employees who commute to work using the following methods:

- Drive 18
- Walk _____
- Bike 2 occasional
- Transit _____
- Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 67% +/-
Walk 20% - 25%
Bike 3-4%
Transit 10%
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

HOY'S DRUGSTORE -

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints?

Crossing Street - from Bus Stop @ Morey & Pershing.
Turning in to parking area - speeds & stopping.
Screeching a few times a week from high speeds.
Winter - ice buildup.

What transportation improvement(s) would be most helpful for your business?

→ Speed limit along Pershing - 45-50 mph.
· Separation w/walk. - Planters exist. - Hoy's put in wall · Bike Lanes with own lane would be
→ Safe Crossing

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing?

• Lighting - some minor level would help with safety.
• R.O.W. is maxed out - wider sidewalks would be challenging.

Do you have any additional transportation concerns or comments that you would like to share?

• More speed enforcement would be positive.

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? State Farm

What is your business address? 1022 E. Pershing

How many employees does your business currently have? 3

How long have you been in your current location? 32 years

When do your employees work? What are your typical shifts? 9-5 M-F

Please estimate the number of employees who commute to work using the following methods:

Drive 100%
Walk _____
Bike _____
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 100%
Walk _____
Bike _____
Transit _____
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints? Speed limits- up to 35mph (now people go 45mph)

- Backing out on Pershing, especially crossing + going East.

What transportation improvement(s) would be most helpful for your business? New road is great-

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing? Lower speed limit back to 30mph

- more police watch for speeds-
- Crosswalk would be great

Do you have any additional transportation concerns or comments that you would like to share?

- No signage- fluff

Alan Ose

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Wyoming State Bank.

What is your business address? 1525 E. Pershing Blvd.

How many employees does your business currently have? 22

How long have you been in your current location? ~~30~~ + yrs.

When do your employees work? What are your typical shifts? 7:30-5:30

Please estimate the number of employees who commute to work using the following methods:

Drive 90%.
Walk _____
Bike _____
Transit 10% - 1-2 people
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 100%. - Busy drive through.
Walk _____
Bike _____
Transit _____
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints? Kids coming to carry out through back way & don't attempt to go on Pershing to get to school. Rear access concerns. Conflict. Line of sight is limited.

Hill to pass the bank - limited sight distance. Points of conflict

Carry - Jr. High will move to East High School & elementary will move in.

What transportation improvement(s) would be most helpful for your business? Cross walk, traffic calming. District markings may be helpful. Activated cross walk. Supportive of buffered sidewalk.

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing? additional lighting - dark around sidewalks. Landscaping.

Do you have any additional transportation concerns or comments that you would like to share?

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Sonnido Dentistry

What is your business address? 1204 Pershing

How many employees does your business currently have? 4

How long have you been in your current location? 30+ yrs.

When do your employees work? What are your typical shifts? 1-5 ; 8-5. M-TH

Please estimate the number of employees who commute to work using the following methods:

Drive _____
Walk _____
Bike _____
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive _____
Walk 2%. won't walk if they have to drive.
Bike _____
Transit _____
Other _____

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Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints?

Accessing / exiting east (u-turn) onto Pershing.
Put planters out - -
≠ Access
≠

What transportation improvement(s) would be most helpful for your business?

traffic signal.
signal timing

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing?

Do you have any additional transportation concerns or comments that you would like to share?

Speed. Light was on Duff. It was removed
but electrical is still there.
Snow plows pushing snow on sidewalk.
- line of sight @ lights by cemetery

Pershing Boulevard Complete Streets Plan

Jeneil McMahon

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Frontier Access & Mobility

What is your business address? _____

How many employees does your business currently have? 14-15

How long have you been in your current location? _____

When do your employees work? What are your typical shifts? 8-5 M-F
8 - noon Sat

Please estimate the number of employees who commute to work using the following methods:

Drive 100%.
Walk _____
Bike _____
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 100%.
Walk _____
Bike _____
Transit _____
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints? Rerouting customers back beyond behind Toy's so that customer's don't have to exit on Pershing. When people are having vehicles serviced they are here all day & need to cross the street for lunch.

What transportation improvement(s) would be most helpful for your business? Move ~~my~~ bus stop to other side of street. audible cross walk. / extra crossing time. - Signal.

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing? Street trees would be tough here.

Do you have any additional transportation concerns or comments that you would like to share? Kids crossing the street going to DQ. Line of site(s) due to old vs. new building set back. Speeding.

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Pershing Boulevard Complete Streets Plan

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Ashton in Life

What is your business address? 1024 E. Pershing Blvd.

How many employees does your business currently have? 1

How long have you been in your current location? 4yrs.

When do your employees work? What are your typical shifts? 10-5

Please estimate the number of employees who commute to work using the following methods:

Drive 100%.
Walk _____
Bike _____
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 70%.
Walk 30%. + Bus
Bike _____
Transit _____
Other _____

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints? Can't cross Pershing safely.

What transportation improvement(s) would be most helpful for your business? Stop Light @ Duff & Pershing. Patroling speeding obrs. 4 way stop

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing? No.

Do you have any additional transportation concerns or comments that you would like to share? Speeding is an issue. Crossing Pershing is an issue.

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

The City of Cheyenne and the Cheyenne Metropolitan Planning Association would like to learn more about the transportation needs and priorities of your business. As part of the Pershing Boulevard Complete Streets Plan public process, we are requesting that business owners and managers along Pershing Boulevard provide us with information about how employees and customers get to their business, and what other business-related traffic concerns may exist.

Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Cheyenne Visionary

What is your business address? _____

How many employees does your business currently have? 20

How long have you been in your current location? 30 yrs.

When do your employees work? What are your typical shifts? 7:30-6:30

Please estimate the number of employees who commute to work using the following methods:

Drive 100%
Walk _____
Bike _____
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 96%
Walk 1-2%
Bike _____
Transit 1-2%
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints? Elderly population. Kids from school walking to DQ. Poor line of sight is limited coming out of Quick. Accidents occur. conflict at Accesspoint out of DQ.

What transportation improvement(s) would be most helpful for your business? A traffic light @ Duff & Pershing.

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing? Pedistrian crosswalk w/ flashing light. Cosmetic improvements would help

Do you have any additional transportation concerns or comments that you would like to share? Slower speeds? Speeding along Pershing due to straightway. People

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

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Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? DQ

What is your business address? _____

How many employees does your business currently have? 50

How long have you been in your current location? 50 yrs.

When do your employees work? What are your typical shifts? 11-5 ; 5-11

Please estimate the number of employees who commute to work using the following methods:

Drive _____
Walk 10%.
Bike _____
Transit 5%.
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 60%.
Walk 40%. - H.S. J.R. Kids
Bike _____
Transit _____
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints? Difficult to walk here.

What transportation improvement(s) would be most helpful for your business?
- Cross walks w/ flashing lights

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing? Buffered Sidewalks.

Do you have any additional transportation concerns or comments that you would like to share? Concern about safety of kids walking here.

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Pershing Boulevard Complete Streets Plan

BIGHORN SHOOTIN' IRONS

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints?

NO

What transportation improvement(s) would be most helpful for your business?

Better signage

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing?

Unnecessary

Do you have any additional transportation concerns or comments that you would like to share?

Convenient that CATA station is located so people can stop off for bus stop

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

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Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? Big Shooter Tillows

What is your business address? 1020 Pershing

How many employees does your business currently have? 0

How long have you been in your current location? 3+ years

When do your employees work? What are your typical shifts? N/A

Please estimate the number of employees who commute to work using the following methods:

Drive N/A
Walk _____
Bike _____
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 100%
Walk _____
Bike _____
Transit _____
Other _____

www.plancheyenne.org/pershing-completestreets

Pershing Boulevard Complete Streets Plan

Business Transportation Survey

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Your input is incredibly valuable and your identity will be kept strictly confidential. If you would prefer to fill out the survey online, you can do so at the address listed on the bottom of this form. We truly appreciate your time.

What is the name of your business? STATE FARM INSURANCE - ALAN

What is your business address? 1022 Pershing

How many employees does your business currently have? 3

How long have you been in your current location? 32+ years

When do your employees work? What are your typical shifts? 9-5 M-F

Please estimate the number of employees who commute to work using the following methods:

Drive 100%
Walk _____
Bike _____
Transit _____
Other _____

How do customers typically get to your business? (Please estimate to the best of your knowledge – total must add up to 100%)

Drive 100%
Walk _____
Bike _____
Transit _____
Other _____

Pershing Boulevard Complete Streets Plan

Do your employees or customers have persistent complaints about getting to or accessing your business? If yes, what are the most common complaints?

Backing out onto Pershing
People try to turn east - problematic

What transportation improvement(s) would be most helpful for your business?

What was just done - Center turn lane
Good now

Would wider sidewalks, well marked crosswalks, lighting and other enhancements help the business environment along Pershing?

Bike lanes unnecessary
Do not diet - Chart w/ values
X-walk w/ signs, lower speed limit

Do you have any additional transportation concerns or comments that you would like to share?

lots of Accidents
No cops for speeders - no enforcement

monument signs - stuff

WF SMK BANK - DAVID COOK

1. KIDS WON'T CROSS WALK ON PERSHING - JR. HIGH NOW EVENTUALLY ELEMENTARY SCHOOL
2. SIGHT DISTANCE OFF OF HIGH to PERSHING to the EAST
3. COLOR GYM COMING - MORE TRAFFIC
4. NO PLACE to SLOW DOWN ON PERSHING
5. GATEWAYS - YES
6. RED SIGNAL AT RIGHT LOCATION
7. ADDITIONAL LIGHTING

10 AM - **Cheyenne Vision Clinic**

11 AM - **Frontier Access and Mobility**

12 PM - **Schmidt Dentistry**

2 PM - **Wyoming State Bank**

Anytime between 11 to 4 - **Hoy's**

Nancy (719) 337-4141
cell

Fitness Center 778-5500
Andy Hendrickson

Notter
Mac on this Pershing
issue.
Give me a
call for an
update & what else
RP

Fwd: Pershing
Gregg Crisp
to:
CITY MAYOR
02/24/2013 11:49 PM
Hide Details
From: Gregg Crisp <gregg@greggforcheyenne.com>
To: CITY MAYOR <mayor@cheyennecity.org>,
Please respond to Gregg Crisp <gregg@greggforcheyenne.com>

From: "Anne Picot" <loborolass@gmail.com>
To: "Gregg Crisp" <gregg@greggforcheyenne.com>
Sent: Friday, February 22, 2013 5:27:28 PM
Subject: Re: Pershing

Dear Gregg,

I apologize for not contacting you earlier, but now please accept my remarks concerning Pershing Blvd.

I myself visit Frontier access regularly and sometimes need to spend considerable time both being assessed and receiving repairs. Both my husband and myself have attempted to cross the part of the road between Frontier Access and Hoy's Pharmaceutical and across to the Eatery on the other side of the road.

Both of us, The Picot's, concur with the remarks that Mr Pete Laybourne made whilst attending our meeting of the Mayor's Council of Disabled People. This is in fact a very fast road and traffic is heavy at times and due to the steep incline both from the left and the right, it is not always possible to cross the road in complete safety.
I am aware that to place a set of traffic lights at this junction would be costly, but wonder if a pedestrian crossing could be part of making this road a safer area, before sadly a tragedy may occur, especially with a child, or elderly person.

I myself use a power chair on a permanent basis, but I am unsettled when needing to access this particular stretch of road.
I sincerely hope that this personal testimonial will help in the Council's judgement, along with the most adequate representation that Mr. Laybourne has submitted on behalf of members of the community.

Kindest regards.
Anne Picot.

Gregg, please share this e-mail with members of the Council.

On Fri, Feb 22, 2013 at 1:24 PM, Gregg Crisp <gregg@greggforcheyenne.com> wrote:

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Greetings:
Monday night's city councils meeting the Pershing Blvd. safety issues are going to be brought before the city council (during the "other business" time slot). Pete Laybourn and City Councilman Sean Allen have asked me to be there as the MCPD Chairman. Since a City Councilman asked me to be there, of course I will be there. And due to the fast action on this issue, I have given a copy of the letter I wrote to each member of the governing body (letter is attached). I wanted you all to be fully informed and aware of these activities. I would have preferred to have more time to discuss this, but events beyond my control have prevented that. **Send me your thoughts, talking points, etc.** Whether I am going to speak Monday night is yet to be determined (I have a feeling I will be asked to). I will be prepared.

Sincerely, Gregg Crisp
Chairman I-180/Greeley Highway Enhancement Coalition-
Chairman Mayor's Council for People with Disabilities-
Executive Committee Member at Large
CAPPA -WY Department of Health

Alan J. Ose, Agent

State Farm Insurance

1022 E. Pershing Blvd

Cheyenne, Wyoming

August 22, 2014

Sreyoshi Chakraborty

Metropolitan Planning Organization

Cheyenne, Wyoming

Dear Ms. Chakraborty:

On behalf of myself and hundreds of my clients and policyholders, I must strenuously object to the plans put forth regarding the stretch of east Pershing Boulevard between Evans Avenue and Logan Avenue.

To begin with, this road was completely re-done and finished barely one year ago, with months of planning, construction, and attendant traffic disruption and aggravation. That would have been a good time to tinker and experiment with any pedestrian/bicycle ideas.

This section of road is a commercial artery, not a path through the parkway. There are so few pedestrians and bicyclists as to make it ludicrous to attempt to cater to them for the few months the weather permits. The vehicles that use the road have paid for that road over the years in the form of road, use, and Fifth Penny taxes and expect that the commitment be honored.

The roadway is too narrow to safely accommodate another lane or two for bicycles. If installed, it would only give bicyclists a false sense of security and safety, leading to tragic and preventable accidents.

Sincerely,

Alan J. Ose

Pershing Blvd. Meeting
2.20.2015

Meeting w/Rande Pouppirt 11:30 am

- Overall approach is solid
- Gateway treatments and corner plazas are positive additions
- Continue to explore crossing location at Duff Avenue/Pershing Blvd.
- Concerns with potentially closing Alexander Avenue or Dunn Avenue
  - Ensure drive thru access to Rande's property is maintained
  - Need two access points off Pershing including drive thru and parking
  - Need parking access at rear
  - Could be amenable to closure of Alexander Avenue if adjacent drive thru access provided

Meeting w/Todd Anderson (Elite Cleaners) 1pm

- Firm on continuing to provide direct pull in access to front parking off Pershing
- Alley continuing to Airport Parkway could help circulation
- Has no immediate desire to remove storage bldg at west to accommodate additional parking or shared parking arrangement with corner property
- Could be amenable to parking reconfiguration if quantity of parking increases
- Potential sale of property could be pending in near future with retirement
- Remove abandoned light pole at SW corner of property

- Redevelopment scenario should be shown here as it is likely in near future

Meeting w/Tom, Sreyoshi, Brandon Cammarata, Nathan 2pm

- Explore and refine crossing location and crossing type
  - Maintain left turn access to Dairy Queen
  - Explore potential crossing to east of Duff
- Need signal timing adjustments for pedestrian cycle at Pershing/Airport Pkwy.
- Show enhanced signal poles and crossing poles
- Need splashguard on tree planters (like Casper 2nd St.)
- Show Airport wayfinding/gateway sign (use City Std. wayfinding signs)
- Show transit stop at Airport Parkway
- Show crosswalk treatments in renderings and capture entire intersection in each
- Short term, intermediate and longer term phasing desirable
- Overall approach should be refined
  - Explore cost savings refinements to cross-section to keep curb line intact
  - Expand outward and establish build-to lines as redevelopment occurs
- Approach should focus on guiding redevelopment efforts
  - Architectural concepts
  - Build-to lines
  - Streetscape materials and widths
- Phasing refinements
  - 1: Crossing
  - 2: Commercial core from Airport Parkway to Dunn Ave. including intersections(may break out further)
  - 3: Commercial core from Dunn Ave. to Logan Ave.
  - 4: Medians from Evans to Airport Parkway
  - 5: Sidewalk widths and street trees from Evans to Airport Parkway (may consolidate 4/5)
  - Funding Sources: STP Urban, 5th Penny, 6th Penny, others

Letters

Re: Pershing
Rick Kaysen to: Gregg Crisp 02/22/2013 03:25 PM

Thank you sir--well explained.

Rick Kaysen
Mayor
City of Cheyenne
307-637-6300

Gregg Crisp I need to clarify a few things in the earlier email I... 02/22/2013 01:25:02 PM

From: Gregg Crisp <gregg@greggforcheyenne.com>
To: Gale Shenefelt <shenefeltg@laramie1.org>, Mike Sandidge <mike.sandidge@wyo.gov>, Joanne Weigand <tinkertoy506@yahoo.com>, Shane Moore <shane@kidsteplc.com>, Mark McKay <mark.mckay@wyo.gov>, "C. Ray Livermont" <rslrc@yahoo.com>, Jason Lewis <lew6242@aol.com>, Daryl Hensel <dhenselcpa@aol.com>, Connie Hand <cdhand82009@yahoo.com>, Gregg Crisp <Gregg@greggforcheyenne.com>, MCPD Barbara <Harleyblue2@live.com>, loborolass@gmail.com, CITY MAYOR <mayor@cheyennecity.org>, Sean Allen <seandallen@hotmail.com>,
Date: 02/22/2013 01:25 PM
Subject: Pershing

I need to clarify a few things in the earlier email I sent (see below). The MCPD is NOT presenting the Pershing Blvd. safety concerns to the governing body, again the MCPD is NOT presenting the matter. It was never my intention to present it Monday night. It was/is my understanding that Pete Laybourn is to present the matter for discussion. As far as to whom even asked me to be there and what my participation would be was misinterpreted or I was mislead. I feel now, after speaking with the Mayor, that I, was/am being used for leverage. I did not clarify things as I should have and I must be accountable for my actions. As I said, I have spoken with the Mayor and I will be at the city council meeting Monday to clarify and to answer any questions they may have. Any questions contact me -Gregg

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Sean Allen have asked me to be there as the MCPD Chairman. Since a City Councilman asked me to be there, of course I will be there. And due to the fast action on this issue, I have given a copy of the letter I wrote to each member of the governing body (letter is attached). I wanted you all to be fully informed and aware of these activities. I would have preferred to have more time to discuss this, but events beyond my control have prevented that. **Send me your thoughts, talking points, etc.** Whether I am going to speak Monday night is yet to be determined (I have a feeling I will be asked to). I will be prepared.

Sincerely, Gregg Crisp
Chairman I-180/Greeley Highway Enhancement Coalition-
Chairman Mayor's Council for People with Disabilities-
Executive Committee Member at Large
CAPPA -WY Department of Health

Cheyenne Mayor's Council for People with Disabilities

Mayor Richard "Rick" L. Kaysen

Chairman, Gregory "Gregg" A. Crisp

Vice- Chairman, Mike Sandidge

Secretary/Treasurer, Daryl Hensel

Equal Access and Opportunity... Not Special Treatment!

February 18, 2013

To:The Governing Body City of Cheyenne
2101 O'Neil Ave.
Cheyenne, WY 82001

Mr. Mayor, Honorable Councilmen and Councilwomen:

A concerned citizen, Pete Laybourn, brought before the MCPD an issue of great importance to him. It consists of vehicle and pedestrian traffic, and effects both those with a disability and those without. The area of concern is Pershing Blvd. between Morrie Ave. and Dunn Ave.

This particular stretch of roadway sees a high number of vehicle traffic at a relatively high speed of travel. But it also has a large volume of pedestrian traffic that includes a great number of people with disabilities. This is due to the businesses and services located on that section of roadway; such as Hoy's Drug, Frontier Access and the Vision clinic.

With the high numbers of both vehicle and pedestrian use, the ability to cross the roadway or to turn into a business are very hazardous. The concern is magnified if you are a pedestrian attempting to cross, at Duff and Pershing, for exsample from Hoy's to the Vision Clinic. And safety concerns become quite high if you are disabled or handicapped.

Members of the MCPD who live nearby or use the area, myself included: Concur with Mr. Laybourne that this stretch of roadway is of great concern. And one Council member recalled a woman being hit in her wheelchair at that very intersection.

Then there is the added safety concerns at Duff and Pershing that this intersection sits at the bottom of two hills. We believe this can add to vision impairment and increased speeds. While our ideal solution and recommendation would be to see a traffic light placed at Dunn and Pershing (the junction boxes are in place). That is not what we are necessarily asking for.

What we are recommending and asking for is that an independent professional study be completed on that stretch of roadway, (Pershing between Morrie and Dunn), as was done for the traffic light placement at Del Range and Marble Street.

With work soon to begin on the remediation of East Pershing Blvd., we see this as an optimal time to analyze any possible roadway/right-of-way safety enhancements; from a traffic light, to a crosswalk with highly visible pedestrian signage or something between the two.

Thank you for your detailed investigation and thoughtful consideration of what we view as an intercity roadway with significant safety concerns. Please feel free to contact us with any questions or added considerations.

Respectfully,

MCPD Chairman Gregg Crisp
Chairman@cheyennemcpd.org

Information from City of Cheyenne

MEMORANDUM

TO: Nathan Beauheim, P.E., Acting City Engineer

FROM: Mark Escobedo, P.E., Traffic Engineer MaE

DATE: March 8, 2013

SUBJECT: Traffic Signal Request at Duff Avenue and Pershing Boulevard

Each year, the city receives many inquiries concerning the installation of traffic signals. As traffic volumes increase beyond the capability of lesser appropriate alternative traffic control devices such as a four-way stop, it may be necessary to install a traffic signal.

Over the past few years, the city has installed signals at an average rate of 1 per year. These signals are installed using various funding sources, including tax dollars or they may be installed by developers as a requirement under a development agreement. Traffic signals are more costly than is commonly realized, even though they represent a sound public investment when justified. A modern signal can cost up to $250,000. This money pays for a traffic signal controller, signal heads, vehicle detectors and signal poles and supports. Therefore, their installation must be carefully considered. Before installing a traffic signal at an intersection, established minimum criteria must be satisfied. Our review includes an examination of:

- The amount of vehicular and pedestrian traffic.
- The need to provide interruption to the major flow for side street vehicles and pedestrians.
- Special conditions such as horizontal and vertical roadway alignment.
- The accident history at the intersection.
- The proximity of schools.
- A written request is recommended to start the evaluation process for considering placement of a traffic signal.

A traffic control signal has an open-ended life and persists through time as long as the intersection or mid-block location remains signalized. Deteriorating or failed components are, replaced rather than replacing the traffic control signal in its entirety. The components each have a varying life cycle from 1 to 25 years given the improved reliability of components and the quality of products available from manufacturers. Thus a traffic control signal can be expected to have a useful life of 25 years before being replaced.

The general traffic control signal budget is not separated between installation of new signals and routine maintenance needs for existing traffic control signals. It is difficult to determine whether current funding is sufficient for installation of new traffic control signals and maintenance. As the number of traffic control signals increases each year, additional funding will be required to

maintain these devices. Traffic control signals requested and installed where not needed, just add to the strain on staff and resources.

When the Engineering Division receives a request to do an engineering study of a particular intersection, a series of steps can take place.

1. Criteria have been developed to help ensure that new traffic control signals are installed only where they will do more good than harm. These criteria are called "warrants", and are the minimum legal criteria as is required by the Manual on Uniform Traffic Control Devices (MUTCD). Traffic and/or MPO technicians conduct an engineering study to see if the location meets warrants. This engineering study is an information gathering process. Information is collected regarding traffic volume, the speed that traffic is flowing, the amount of pedestrian activity, accident history and the distance the proposed new signal location is away from adjacent signals.
2. If the location passes the engineering study, the new traffic signal site goes on a priority list and the ranking on the list is determined by the traffic volume figures and accident history.
3. Each year, based on funding, the City of Cheyenne starts at the top of the priority list with the goal of constructing as many new signals as the budget will allow.
4. Once funding is available, a traffic signal design is prepared. As part of the design, bid specifications are also prepared. This process takes between two and three months.
5. The signal project then goes out to bid, which takes between two and three months. The project is awarded and construction begins and takes approximately six months to complete.

Traffic control signals are often considered a panacea for all traffic problems at intersections. This belief has led to traffic control signals being installed at many locations where they are not needed, adversely affecting the safety and efficiency of vehicle, bicycle and pedestrian traffic. Traffic signals have advantages and disadvantages that must be considered when deciding whether to install them. Improper or unjustified traffic control signals can result in one or more of the following disadvantages:

1. Excessive delay.
2. Excessive disobedience of the signal indications.
3. Increased use of less adequate routes as road users attempt to avoid the traffic control signals, and
4. Significant increase in the frequency of collisions (especially rear-end collisions by up to 50%).

An engineering study of the traffic conditions, pedestrian characteristics, and physical characteristics of the intersection of Duff Avenue and Pershing Boulevard have been performed to determine if a traffic control signal is justified at this location. The traffic counts, a five-year accident record, and the signal warrant analysis summary are attached for your review. MUTCD Warrant 5 – School Crossing, and Warrant 9 – Intersection Near a Grade Crossing, were not

evaluated. The investigation and the analysis indicated that Warrants 1 through 4 and Warrants 6 through 8 have not been satisfied. The minimum legal criteria required by the MUTCD has not been met, therefore it is recommended that a traffic control signal not be installed at this location.

Cheyenne MPO
2101 O'Neil Ave, 205
Cheyenne, WY 82001

Study Name : **Duff & Pershing**
Study Date : **02/06/13**

Signal Warrants - Summary

Major Street Approaches

Eastbound: **Pershing**
Number of Lanes: **2**
85% Speed < 40 MPH.
Total Approach Volume: **4,881**

Westbound: **Pershing**
Number of Lanes: **2**
85% Speed < 40 MPH.
Total Approach Volume: **4,248**

Minor Street Approaches

Northbound: **Duff**
Number of Lanes: **1**
Total Approach Volume: **192**

Southbound: **Duff**
Number of Lanes: **1**
Total Approach Volume: **217**

Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Satisfied**

Warrant 1A - Minimum Vehicular Volume ..... Not Satisfied
Required volumes reached for 0 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... Not Satisfied
Required volumes reached for 0 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... Not Satisfied
Required volumes reached for 0 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Not Satisfied**
Number of hours (0) volumes exceed minimum < minimum required (4).

Warrant 3 - Peak Hour ..... **Not Satisfied**

Warrant 3A - Peak Hour Delay ..... Not Satisfied
Approach volumes on minor street don't exceed minimums for any hour. Delay data not evaluated.

Warrant 3B - Peak Hour Volumes ..... Not Satisfied
Volumes do not exceed minimums for any hour.

Warrant 4 - Pedestrian Volumes ..... **Not Satisfied**
Nearest signal within 300 feet.

Warrant 5 - School Crossing ..... **Not Evaluated**

Warrant 6 - Coordinated Signal System ..... **Not Satisfied**
Nearest coordinated signal (299) is less than 1,000 feet away.

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (2) is less than minimum (5). Volume minimums are not met.

Warrant 8 - Roadway Network ..... **Not Satisfied**
Major Route conditions not met. One or more volume requirement met.

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

Cheyenne MPO
2101 O'Neil Ave, 205
Cheyenne, WY 82001

Study Name : **Duff & Pershing**
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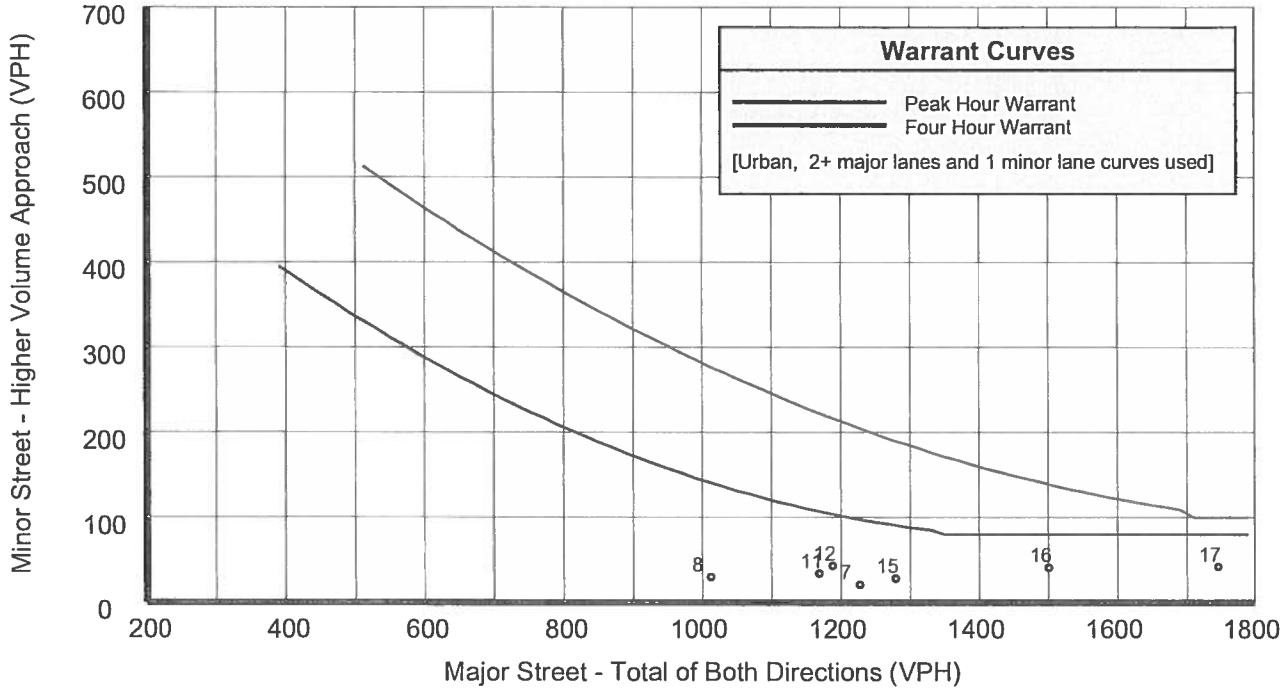
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 600	Min 150
16:45	1,820	44	SB	Yes	No
16:30	1,762	44	SB	Yes	No
17:00	1,746	42	SB	Yes	No
16:15	1,611	51	SB	Yes	No
16:00	1,501	41	SB	Yes	No
15:45	1,382	35	SB	Yes	No
15:30	1,309	32	SB	Yes	No
17:15	1,304	24	SB	Yes	No
15:15	1,284	30	SB	Yes	No
15:00	1,279	28	SB	Yes	No
07:15	1,253	26	NB	Yes	No
07:00	1,227	21	NB	Yes	No
07:30	1,202	26	NB	Yes	No
11:15	1,199	35	SB	Yes	No
12:00	1,188	43	SB	Yes	No
11:45	1,186	45	SB	Yes	No
11:00	1,169	34	SB	Yes	No
11:30	1,162	40	SB	Yes	No
07:45	1,126	30	NB	Yes	No
08:00	1,013	30	NB	Yes	No
14:45	963	23	SB	Yes	No
06:45	886	15	NB	Yes	No
10:45	869	21	SB	Yes	No
12:15	862	33	SB	Yes	No

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 900	Min 75
16:45	1,820	44	SB	Yes	No
16:30	1,762	44	SB	Yes	No
17:00	1,746	42	SB	Yes	No
16:15	1,611	51	SB	Yes	No
16:00	1,501	41	SB	Yes	No
15:45	1,382	35	SB	Yes	No
15:30	1,309	32	SB	Yes	No
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11:00	1,169	34	SB	Yes	No
11:30	1,162	40	SB	Yes	No
07:45	1,126	30	NB	Yes	No
08:00	1,013	30	NB	Yes	No
14:45	963	23	SB	Yes	No
06:45	886	15	NB	No	No
10:45	869	21	SB	No	No
12:15	862	33	SB	No	No

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 720	Min 120
16:45	1,820	44	SB	Yes	No
16:30	1,762	44	SB	Yes	No
17:00	1,746	42	SB	Yes	No
16:15	1,611	51	SB	Yes	No
16:00	1,501	41	SB	Yes	No
15:45	1,382	35	SB	Yes	No
15:30	1,309	32	SB	Yes	No
17:15	1,304	24	SB	Yes	No
15:15	1,284	30	SB	Yes	No
15:00	1,279	28	SB	Yes	No
07:15	1,253	26	NB	Yes	No
07:00	1,227	21	NB	Yes	No
07:30	1,202	26	NB	Yes	No
11:15	1,199	35	SB	Yes	No
12:00	1,188	43	SB	Yes	No
11:45	1,186	45	SB	Yes	No
11:00	1,169	34	SB	Yes	No
11:30	1,162	40	SB	Yes	No
07:45	1,126	30	NB	Yes	No
08:00	1,013	30	NB	Yes	No
14:45	963	23	SB	Yes	No
06:45	886	15	NB	Yes	No
10:45	869	21	SB	Yes	No
12:15	862	33	SB	Yes	No

Counter:
Counted By: JSims
Weather: Clear
Other:

File Name : Duff & Pershing
Site Code : 00000000
Start Date : 1/31/2013
Page No : 1

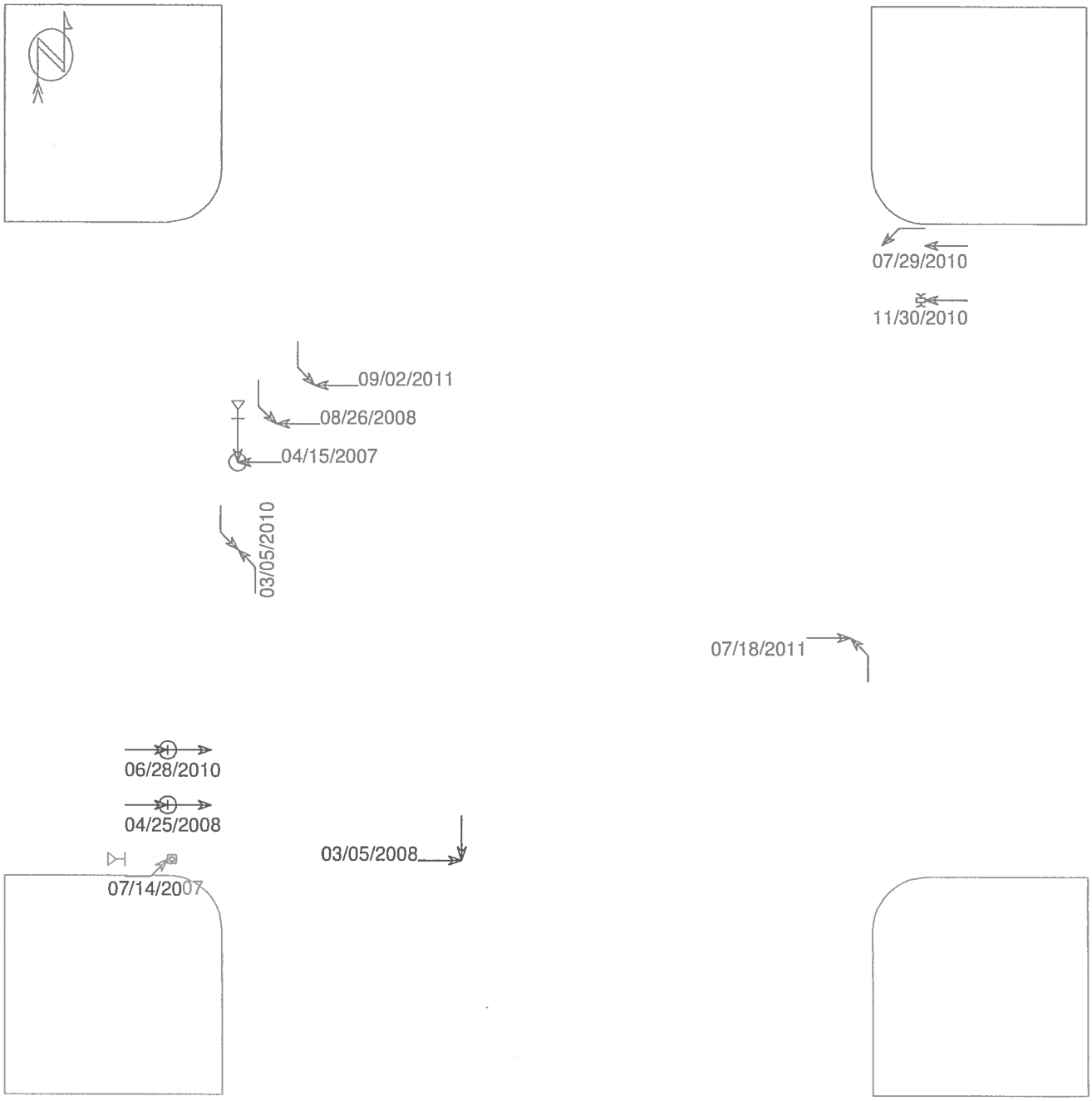
Groups Printed- Vehicles

	Duff From North				Pershing From East				Duff From South				Pershing From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	2	0	1	0	2	142	2	0	2	0	1	0	1	116	0	0	269
07:15 AM	1	0	2	0	2	167	2	1	5	0	0	0	1	120	1	0	302
07:30 AM	4	0	1	0	3	196	5	0	6	0	1	0	1	124	1	0	342
07:45 AM	3	0	3	0	1	193	3	0	5	0	1	0	7	136	1	0	353
Total	10	0	7	0	8	698	12	1	18	0	3	0	10	496	3	0	1266
08:00 AM	1	0	0	0	5	159	14	0	7	0	1	0	6	104	1	0	298
08:15 AM	4	0	0	0	4	118	2	0	2	0	3	0	7	110	1	1	252
08:30 AM	2	0	0	0	4	119	5	1	5	1	5	0	5	119	2	1	269
08:45 AM	1	0	1	0	1	107	6	0	5	0	1	0	4	108	2	1	237
Total	8	0	1	0	14	503	27	1	19	1	10	0	22	441	6	3	1056
11:00 AM	8	0	1	1	5	116	6	2	2	0	3	1	4	160	5	1	315
11:15 AM	6	0	1	0	4	120	4	0	6	0	2	0	3	162	3	0	311
11:30 AM	4	0	1	0	3	119	3	0	4	1	2	0	2	146	4	0	289
11:45 AM	10	1	2	2	6	122	7	1	5	0	3	1	1	159	5	1	326
Total	28	1	5	3	18	477	20	3	17	1	10	2	10	627	17	2	1241
12:00 PM	9	0	1	1	2	134	5	0	3	0	5	1	4	177	4	1	347
12:15 PM	8	1	3	0	7	124	6	0	5	1	3	0	1	116	5	1	281
12:30 PM	6	0	4	0	3	153	2	1	5	0	5	2	5	134	4	2	326
12:45 PM	7	1	3	1	2	162	4	1	4	0	4	0	3	128	3	2	325
Total	30	2	11	2	14	573	17	2	17	1	17	3	13	555	16	6	1279
03:00 PM	6	0	0	0	2	141	4	1	0	0	0	0	3	173	4	0	334
03:15 PM	8	1	2	4	8	126	5	0	10	1	3	2	2	164	8	0	344
03:30 PM	5	0	1	0	8	141	3	0	3	0	0	0	4	161	6	0	332
03:45 PM	4	0	1	0	7	147	7	0	1	0	2	0	2	153	0	0	324
Total	23	1	4	4	25	555	19	1	14	1	5	2	11	651	18	0	1334
04:00 PM	1	1	6	2	5	150	5	0	2	0	1	0	5	167	0	4	349
04:15 PM	8	0	5	0	4	138	4	0	1	0	1	2	3	189	0	0	355
04:30 PM	3	0	6	0	6	155	3	0	8	1	2	0	5	223	4	0	416
04:45 PM	5	0	6	0	1	176	7	4	6	1	2	0	5	240	6	0	459
Total	17	1	23	2	16	619	19	4	17	2	6	2	18	819	10	4	1579
05:00 PM	12	0	6	0	4	144	7	0	11	0	3	0	3	278	6	0	474
05:15 PM	5	0	1	0	1	165	3	0	6	0	0	0	12	301	7	0	501
05:30 PM	7	0	2	0	1	152	5	4	5	0	2	0	8	282	6	1	475
05:45 PM	8	0	1	0	4	123	2	0	2	0	1	0	5	223	4	0	373
Total	32	0	10	0	10	584	17	4	24	0	6	0	28	1084	23	1	1823
Grand Total	148	5	61	11	105	4009	131	16	126	6	57	9	112	4673	93	16	9578
Apprch %	65.8	2.2	27.1	4.9	2.5	94.1	3.1	0.4	63.6	3	28.8	4.5	2.3	95.5	1.9	0.3	
Total %	1.5	0.1	0.6	0.1	1.1	41.9	1.4	0.2	1.3	0.1	0.6	0.1	1.2	48.8	1	0.2	

Duff Ave & Pershing Blvd

11 Accidents

01/01/07 - 12/31/11



(clear filter), (0) accidents with insufficient data for display

Straight	Parked	Pedestrian	Fixed objects:
Stopped	Erratic	Bicycle	General, Pole
Unknown	Out of control	Injury	Signal, Curb
Backing	Right turn	Fatality	Tree, Animal
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data

Engineering

2101 O'NEIL AVENUE Room 206, Cheyenne, WY 82001
(Phone) 307-637-6268 (Fax) 307-637-6256

MEMORANDUM

TO: Mayor Kaysen
City Council

FROM: Nathan Beauheim, P.E., Acting City Engineer

RE: Intersection of Pershing & Duff

DATE: March 8, 2013

There has been recent discussion about the possibility of re-installing the traffic signal that used to exist at the intersection of Pershing & Duff. While the documentation on file in the City Engineer's Office is unfortunately not as complete as might be desired about the historic sequence of events, this memorandum has been prepared to discuss the history as best we have been able to determine along with the current conditions and alternatives for the future.

Intersection History

The City retained AVI in 1987 to develop a master plan for the reconstruction of Pershing Blvd. between I-25 and Converse Ave. The stated intention at the time was to split the project into approximately five phases with construction to take eight to ten years (not continuous). Phases one through three were constructed in the 1990's, however phases four (Concord to Converse) and five (I-25 to Pioneer) have only recently gone to construction.

As might be expected considering the length of the proposed project, the list of concerns that arose in the project planning was extensive. The most salient for this discussion was the need for improvements at the intersection of Pershing & Morrie. At the time, the intersection consisted of two offset T's, as can be seen on the attached sketch from the AVI master plan, neither of which was signalized. As might be expected, this configuration was proving problematic under even moderate amounts of traffic, resulting in excessive delays and crashes. Construction of a new airport terminal on Airport Parkway and other development along Airport Parkway was only expected to exacerbate the situation. The recommended alternative, which was later carried out, was to realign Morrie into a signalized four-way intersection. This involved property acquisition from both private property owners on the south side of Pershing and the cemetery on the north side. This realignment was the number one recommendation in the entire master plan.

Based on the historic traffic numbers on Duff contained in the AVI master plan, the signal at Duff did not

meet the recommended criteria for installation of a traffic signal at the time the project was constructed and the signal removed. The AVI master plan also included projections for future traffic numbers at the intersection. Based on the future traffic projections contained in the AVI master plan, a signal would also not be justified at the end of their planning horizon for the master plan in 2020. Comparing the projected numbers to the counts we took earlier this year, traffic on Duff is growing even slower than AVI projected. This is not especially surprising as the neighborhoods on either side of Pershing are fully developed and hence can be expected to produce very little additional traffic over time.

Current Conditions

Mark Escobedo, City Traffic Engineer, has prepared a memorandum summarizing the traffic study we performed earlier this year, which is attached. In brief, at the time we studied the intersection, a traffic signal was not justified. In fact, even if traffic on Duff were to double, the thresholds for installing a signal would still not be met. As mentioned above, as the surrounding neighborhoods are fully developed, there is little expectation that traffic on Duff will change significantly.

There has been some discussion that the intersection is busier during the summer, primarily due to traffic patterns at Dairy Queen. This is quite possible. We would be happy to do a follow-up study during the summer months to see if this is in fact true. Unfortunately, this may not be possible in the summer of 2013, depending on how the current Pershing project affects traffic patterns.

Relationship to Current Project

It has been mentioned that the current project is an opportune time to consider these improvements. This is not the case. Anything added to the project now would have to be done as a change order to the contractor. This may not result in the lowest prices. In addition, the requirements associated with the Federal Highway funds being used to construct this project make it extremely difficult to make major changes to the scope of a project at this stage. Adding an additional traffic signal would absolutely be considered to be a major change in the scope of the project.

Impacts and Other Alternatives

Installing a traffic signal at Pershing & Duff would have other impacts on the area. Duff Ave. on the north side of Pershing is only about 40' wide. Approximately 65% of the southbound traffic on Duff turns right onto Pershing. To avoid delaying that traffic too much, designating and striping separate lanes of traffic would be desirable. To do this would require prohibiting all on-street parking on Duff between Pershing and Braun Dr. This could exacerbate existing parking problems at the Cheyenne Vision Clinic (1200 E. Pershing).

Installing a traffic signal at Duff could concentrate traffic from the respective neighborhoods onto Duff. This may or may not be acceptable to the impacted residents. A new signal at Duff would have very little benefit to the overall network. The realignment and signalization of Morrie completed an arterial running from Lincolnway to the east-west portion of Airport Parkway, crossing 19th/20th Streets and Pershing in

the process. In contrast, Duff runs only from 19th St. to 5th Ave., providing limited benefit beyond the immediate area. An additional signal on Pershing would make signal coordination more difficult and likely increase delays on an increasingly busy arterial.

Alternatively, it has been proposed that a marked crosswalk could be installed at the intersection to facilitate pedestrian crossings. The current edition of the *Manual on Uniform Traffic Control Devices* (MUTCD) states the following on these types of situations:

New marked crosswalks alone, without other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence, should not be installed across uncontrolled roadways where the speed limit exceeds 40 mph and either:

A. The roadway has four or more lanes of travel without a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or

B. The roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater.

As the posted speed limit on Pershing is only 35 mph, this section is not strictly applicable. However, it does highlight an area of concern. The somewhat similar crosswalk at Pershing & McCann has long proven to be problematic despite the presence of a reduced speed limit when school children are traveling to and from school. One of the major issues with crosswalks on multi-lane roads is the situation where traffic in one lane sees the pedestrian and stops while traffic in the other lanes passes them without seeing the pedestrian. While this is problematic for all pedestrians, it can be especially so for small children as their skills for judging speed and distance are not yet fully developed. A marked crosswalk may also serve to give pedestrians a heightened sense of security. When this is not combined with heightened awareness by motorists, the results can be unpleasant.

One possibility to mitigate some of these concerns would be to install a raised median on Pershing to act as a pedestrian refuge. To be truly effective, it would probably need to extend across both Duff and the easternmost Dairy Queen entrance, converting both into a right-in/right-out configuration. Whether this impact is acceptable would have to be determined.

Conclusions and Recommendations

The City Engineer's Office does not recommend the installation of a new traffic signal at the intersection of Duff & Pershing. If the Governing Body wishes to investigate the situation further, it would be the recommendation of the City Engineer's Office that funds be allocated for a small planning project to gather public input and formally evaluate different alternatives.

Open House Comments

Pershing Complete Streets Plan Open House #1

Name	Address, Email
Katrina Petersen	2101 O'Neil Ave., Kpetersen@cheyennecity.org
Paula Gordinier	217 E 1st Ave pgordiz@gmail.com
JEFF WIGGINS	PARKS REC
DENNIS AUKER	2810 HOUSE AVE AUKERD@LARAMIE1.ORG
Rick Raysen	City of Cheyenne
Boyd Wiggam	3359 Alexander Ave boyd.wiggam@gmail.com
Pete Layboorn	515 E 25th St petelayboorn@questoffice.net
Alice Burrar	1615 Morningstar Rd 82009 aburrar@wyoming.com
Logan Graves	2101 O'Neil Ave lgraves@cheyennecity.org

Pershing Complete Streets Plan Open House #1

Name	Address, Email
William Lewis	3314 DUFF AVE
Sharon Michnick	1525 Andover Dr.
Jeff White	1512 E 22nd JeffW30@hotmail.com
Dee Herber	2612 Maxwell ave
DIANE WINTER	522 E 26th Street
Frank Cole	
Neil CARROLL	1011 EAST PERSHING
Rande Poppitt	2400 Dunn
Michelle McMahon	1207 E. Pershing Blvd, Chey.
Jan Spires	jspires@cheyennecity.org
Linda Felzien	3335 Alexander Ave.
Iryna Wiggam	3359 Alexander Ave.

Pershing Complete Streets Plan Open House #1

Name	Address, Email
Tom Kreider	217 E 1st Ave, 82001 kreidert@gmail.com
Arndt Williams	3101 O'Neil Ave. City awilliams@cheyennecity.org
Bryan Cook	bcook@cheyennecity.org

Pershing Boulevard Complete Streets Open House Comments

From Boards

- Maintain left hand turn lanes with center turn lane
- More signage needed for the awareness of pedestrian crossings
- Wider sidewalks and place island between streets and sidewalks
- Clearly marked entrances going into businesses. More signage and lower speed limit
- Need stop lights and reduce speed limits
- Flashing beacon at Morrie/Pershing and Alexander/Pershing
- Need pedestrian crossing. Speed limit needs to be reduced
- Need landscaping all along
- Any beautification

Boyd Wiigam- 3359 Alexander Avenue (requested a follow up)

We absolutely need to keep the left turn lane on Pershing Boulevard

Linda Felzer- 3335 Alexander Ave

Just want a safe way to cross Pershing. No aesthetics

WM Lewis- 3314 Duff Avenue, 635-3063

Meeting was very interesting. Hope we will be able to correct a lot of the problems.

No Identification

Street section option 3 would definitely be the most utility, desirable/comfortable but option 1 with the separated bike and pedestrian would be safest if you narrowed the car lanes enough as in option 3 to accommodate a safe buffer between bikes and lanes.

Yes to pedestrian refuge median and texture to alert drivers and non-drivers

Because of our drainage problems, I think a porous option rather than concrete would be preferable

Any kind of landscaping to help define the area as pedestrian and bicycle friendly

Also, driver, bicyclists and pedestrian will need to be educated on how to interact safely.

Neil Carroll- 1011 East Pershing Blvd, 634-5491, neil.carroll@centurylink.net

Please keep current curb and sidewalk width at the corner of Morrie and East Pershing. In other words, please no not widen Pershing or Morrie Avenue. Please keep the thru traffic signals where they are at the corner of Pershing and Morrie. By all means, utilize some sort of pedestrian crossing at the dairy

Queen intersection at Duff. Respect and value residential property owner's opinions just as much as the business owners.

1. I hope you will respect and value the Pershing Blvd. residential property owners' opinions just as much as the business owners.

2. I do encourage the city to utilize some sort of pedestrian crossing at the Dairy Queen intersection at Duff (e.g., a traffic signal or pedestrian signal of some sort).

3. I live at the corner of East Pershing and Morrie Ave. I strongly encourage your department to keep the current curb and sidewalk configuration at the corner of Morrie and East Pershing Blvd. In other words, please do not widen Pershing Blvd. or Morrie Ave. so the sidewalk is positioned right up against my property line fence. I realize the city can do anything it wants to with right of way, but the current configuration provides a nice buffer between my fence line, the sidewalk and the street on both sides.

4. Please keep the traffic signals at the corner of Morrie and East Pershing Blvd. and please try not to relocate them on the corner for design purposes. Although the accident rate has greatly diminished since the Morrie and Pershing realignment project in 1992, I still have had two car accidents that resulted in damage to my fence over that same period. I would not want the car traffic to be any closer to my fence line, if it can be avoided.

5. Also, when considering design purposes, as nice as they may be, please incorporate planning for snow removal. Every winter it is a battle to keep the sidewalks clear on the right of way sidewalks only to have the snow plows push it back onto the sidewalk and the grass. In my opinion, any future design element should consider snow removal access for the snow plows. If the curb and sidewalks are moved any closer to my fence line, the snow will be pushed even further onto my property. It is so hard to keep good grass after the chemicals melt on the lawn.

6. Finally, please advise future city contractors awarded contracts for Pershing or Morrie Ave. to avoid placing traffic safety signs on the grass of residential property owners' right of way. The sand bags used to hold them down occasionally will break and leak onto the grass. Nothing can grow at that spot after it happens. It happened to me during the curb and sidewalk replacement repair last year. I noticed they hardly ever place them on the cemetery's right of way beautiful grass. Hmmmmm! Just saying.

Alan Ose- State Farm Insurance, 1022 E Pershing Blvd

This section of road is a commercial artery, not a path through the parkway. There are so few pedestrians and bicyclists as to make is ludicrous to attempt to cater to them for the few months a year weather permits. The vehicles that use the road have paid for the road over the years in the form of road, use and fifth penny taxes and expect that the commitment be honored

The roadway is too narrow to safely accommodate another lane or two for bikes. If installed, it would only give bicyclists a false sense of security and safety, leading to tragic and preventable accidents

Pershing Complete Streets Plan Open House #2

Name	Address, Email
LUCAS HAVEA, WTE	702 W. LINCOLNWAY, LHAVEA@WYOMINGNEWS.com
Sharon Mahoney	1525 Andover Dr.
Jack [illegible]	1138 E. Pershing (Dairy Queen)
Katrina Petersen	2101 O'Neil Ave., kpetersen@cheyennecity.org
Todd Anderson	1024 E Pershing Elite Cleaners
Dr Carroll	1200 - 1208 - 1212 E Pershing
John & Pat Schmidt	1204 E Pershing toothmechanic@bresnan.net
Neil J. CARROLL	1011 E. PERSHING
Mark Anderson	1026 E Pershing Elite Cleaners
Lisa Ammons	601 Cottonwood Dr. Cheyenne, WY 82001
TAYLOR ROSSETT	1801 Pinion, taylor.rossett@wyo.gov
Tom Mason	2101 O'Neil
Nancy Olson	2101 O'Neil Ave.

Pershing Complete Streets Plan Open House #2

Name	Address, Email
Michelle McMahon	1207 E. Pershing Blvd Michelle@[illegible].com
David Cook	1525 E Pershing d.cook@wyosb.com
Nathan Beauheim	2101 O'Neil nbeauheim@cheyennecity.org
Mike Weiland	5118 Sagebrush Ave mweiland@bresnan.net
Tom Kreider	217 E 1st Ave kreidert@gmail.com
Matt Ashby	2101 MAshby@chey[illegible]
Rick Kaysen	City of Cheyenne
Peter D. Laybourn	515 E 25th petelaybourn@qwestoffice.net

Pershing Complete Streets Plan Open House #2

Name	Address, Email
Pat Ashworth	2205 E. Pershing Pat.Ashworth@expresspros.com
Renee Ashworth	1221 E Pershing Renee.Ashworth@expresspros.com
Paula Gordinier	217 E 1st Ave pgordi2@gmail.com
Jeff White	1612 E 22 Jeffw30@hotmail.com

Pershing Boulevard Complete Streets

COMMENT FORM

Name Nathan Beauheim
Address 2101 O'Neil
Phone 638-4315
Email nbeauheim@cheyennecity.org

Would you like a follow-up from the project team regarding your comment?

(Yes) No (circle one)

COMMENTS: Proposed median/crosswalk at Dunn can't be built as shown and represented to the public. The refuge median needs to be 6' wide to meet ADA requirements and provide enough room to hold the RRFB without it getting knocked over constantly.

This presentation was not on message. The City is not in a position to do a multi-million streetscape project and the public should not have been led to believe that something like this is even under consideration.

If you would like to provide your comments electronically, please email schakraborty@cheyennempo.org.
If you would like to hand deliver your comments, please drop off at 2101 O'Neil Avenue, Room 205.

Pershing Boulevard Complete Streets

COMMENT FORM

Name Jeff Wiggins
Address _____
Phone _____
Email _____

Would you like a follow-up from the project team regarding your comment?

Yes No (circle one)

COMMENTS: Why does median west of Morrie stop before entrance to cemetery. It should extend further west.

If you would like to provide your comments electronically, please email schakraborty@cheyennempo.org.
If you would like to hand deliver your comments, please drop off at 2101 O'Neil Avenue, Room 205.

Pershing Boulevard Complete Streets

COMMENT FORM

Name Paula Gordinier
Address 217 E 1st Ave
Phone 286-3886
Email pgordize@gmail.com

Would you like a follow-up from the project team regarding your comment?

Yes (No) (circle one)

COMMENTS: The Bank should check with its customers to see what proportion of them use the Pershing left turn, rather than the larger entrance. My guess is none, Because the visibility + speed there make it too dangerous.

Please don't let short sighted narrow minded unimaginative business owners obstruct this project.

If you would like to provide your comments electronically, please email schakraborty@cheyennempo.org.
If you would like to hand deliver your comments, please drop off at 2101 O'Neil Avenue, Room 205.

Pershing Boulevard Complete Streets

COMMENT FORM

Name Tom Kreidler
Address 417 E 1st Ave
Phone 634-3573
Email Kreidlert@quait.com

Would you like a follow-up from the project team regarding your comment?

Yes No (circle one)

COMMENTS: This is a challenging corridor - you have done a great job trying to optimize it. I endorse it. I want to voice my concern about bicycle traffic - I was in Lake Tahoe last summer, and the pedestrians walked in the bike lane that moved in the opposite direction. It alleviated feeling like you were going to get run over as you could see the oncoming bicyclists in your lane.

If you would like to provide your comments electronically, please email schakraborty@cheyennempo.org.
If you would like to hand deliver your comments, please drop off at 2101 O'Neil Avenue, Room 205.

Pershing Boulevard Complete Streets

COMMENT FORM

Name Mike Weiland

Address 5113 Sagebrush Ave

Phone 637-7746

Email mweiland @ bresnan.net

Would you like a follow-up from the project team regarding your comment?

Yes No (circle one)

COMMENTS: I really like the plan. Addresses safety and aesthetics!

If you would like to provide your comments electronically, please email schakraborty@cheyennempo.org.
If you would like to hand deliver your comments, please drop off at 2101 O'Neil Avenue, Room 205.

Mind Mixer Comments

Topic Name: I would walk and bike more on Pershing if....

Idea Title: Striped, well marked bicycle lanes would help.

Idea Detail: Create natural landmarks to slow down traffic, such as trees or zero scaping. Market walking and biking paths to all - don't isolate age groups.

Idea Author: Deetta R

Number of Seconds 0

Number of Points 15

Number of Comments 0

Idea Title: Add bicycle lanes, reduce the speed limit, create buffer strip

Idea Detail: I would bike and walk along Pershing more if the speed limit were reduced and the cars weren't rushing by so fast. I think adding a pedestrian buffer area would be nice. Right now the sidewalk is right next to the road. I try to avoid Pershing on my bike because of the higher speed limit and no existing bike lane.

Idea Author: Stacy S

Number of Seconds 0

Number of Points 11

Number of Comments 0

Idea Title: Pedestrians love the improved sidewalk, but...

Idea Detail: The improved sidewalk on Pershing is fantastic, and has greatly increased safety and comfort for both pedestrians and drivers. A remaining issue, however, is plowing the snow. Sometimes the snow in places is days or even weeks old. I have the luxury of driving when it's nasty, but our students don't. Our kids should be able and encouraged to walk or bike to school, especially if it's only a few blocks.

The fence in front of the VA can act like a snow fence causing pedestrians to trudge through large drifts-- sometimes clinging to the fence. And unfortunately, there are no alternative routes in this particular area.

I realize that the weather in Cheyenne is out of anyone's control. However, there are places that get as much snow and wind as us that manage to be pedestrian friendly.

Idea Author: Abby P

Number of Seconds 0

Number of Comments 1

Comment 1: Thank you Abby for bringing this issue to our attention. Sidewalks attached to the travel lanes without a buffer or a treelawn area will often experience this issue as there is no room to store the snow being plowed from the road. If there is enough width in the right of way, we generally recommend detached sidewalks which not only provide greater comfort and separation to pedestrians but also serve as a space for snow storage in winter. | By Sreyoshi C

Topic Name: How can we make it easier and safer to walk Pershing?

Idea Title: Treescape along sidewalks and medians

Idea Detail: If you added some tree scaping along the sidewalks and even into a concrete median that still allowed turn access, it would not only make the corridor more safe for pedestrians and cyclists, it would also go a long way in beautifying a main thoroughfare of our community. The Businesses on Pershing would love it!

Idea Author: Jeff W

Number of Seconds 0

Number of Points 6

Number of Comments 1

Comment 1: Jeff, thank you for sharing your ideas! | By Sreyoshi C

Idea Title: Electronic Pedestrian Crossing lights on Pershing Blvd. Between Morrie Ave and Alexander so pedestrians can cross Duff Ave.

Idea Detail: Place The electronic lights on Pershing Blvd. Between Morrie Ave and Alexander Ave. post lower speed limits limits, caution lights pedestrians crossing, safe island on each corner of the side streets.

Idea Author: Annette W

Number of Seconds 0

Number of Points 6

Number of Comments 0

Address: 1406 E 19th St 82001, United States

Topic Name: Crossing Pershing Safely

Idea Title: Cross walk with beakens

Idea Detail:
This particular stretch of roadway sees a high number of vehicle traffic at a relatively high speed of travel. But it also has a large volume of pedestrian traffic that includes a great number of people with disabilities. This is due to the businesses and services located on that section of roadway; such as Hoy's Drug, Frontier Access and the Vision clinic.

With the high numbers of vehicle and pedestrian use, the ability to cross the roadway or to turn into a business are very hazardous. The concern is magnified if you are a pedestrian attempting to cross, at Duff and Pershing, for example from Hoy's to the Vision Clinic. And safety concerns become quite high if you are disabled or handicapped.

Then there is the added safety concerns at Duff and Pershing that this intersection sits at the bottom of two hills. I believe this can add to vision impairment and increased speeds. While the ideal solution and recommendation would be to see a traffic light placed at Dunn and Pershing (the junction boxes are in place). That is not what I am necessarily asking for.

What I am recommending and asking for is a cross walk, safe spot and beaken lights..

I see this as an optimal time to analyze any possible roadway/right-of-way safety enhancements; from a traffic light, to a crosswalk with highly visible pedestrian signage or something between the two.

Idea Author: Gregg C

Number of Seconds 0

Number of Points 5

Number of Comments 0

Topic Name: Challenge! Pershing District Name.

Idea Title: Something like Midtown

Idea Detail: Pershing is centrally located in town and so Midtown would be a logical name.

Idea Author: Ronnie Z

Number of Seconds 0

Number of Points 2

Number of Comments 0

Topic Name (Instant Poll): If you feel high speeds are an issue on Pershing, what are some ideas to slow it down?

Idea Title: Median Pedestrian Island

Number of Seconds 8

Idea Title: Corridor Lighting & Street Trees

Number of Seconds 6

Idea Title: Rapid Flash Beacons

Number of Seconds 5

Idea Title: District Signage

Number of Seconds 3

Idea Title: Bike Lanes

Number of Seconds 1

Comments

Number of Comments 1

Comment 1: Speed bumps will slow traffic -- make them significant and as many as needed. | By Bruce C P

Topic Name (Instant Poll): Gateway Locations

Idea Title: Location 2: Pershing & Airport Parkway

Number of Seconds 3

Idea Title: Location 1: Peshing & Evans

Number of Seconds 1

Idea Title: Location 3: Pershing & Logan

Number of Seconds 0

Comments

Number of Comments 0

Topic Name (Instant Poll): Pick a location for a Crosswalk

Idea Title: Pershing and Duff

Number of Seconds 2

Idea Title: Pershing and Seymour

Number of Seconds 1

Idea Title: Pershing and Alexander

Number of Seconds 0

Idea Title: Pershing and Dunn

Number of Seconds 0

Idea Title: Other midblock crossing

Number of Seconds 0

Comments

Number of Comments 0

Topic Name (Instant Poll): Help Shape Pershing!

Idea Title: Option 1: Buffered bike lane with center median and 10' travel lanes

Number of Seconds 1

Idea Title: Option 2: Multi-use path with center median

Number of Seconds 1

Idea Title: Option 3: 8' multi-use path with center median, 10.5' travel lanes, and 5' tree lawn

Number of Seconds 1

Comments

Number of Comments 1

Comment 1: Lighting and street furniture would help enhance the pedestrian experience along Pershing: http://streetmix.net/-/157139 | By Ronnie Z

Topic Name: Selfie Contest: Submit a photo of you walking or biking Pershing.

Idea Title: Walking Audit. We all had Trouble crossing Pershing at Duff

Number of Seconds 0

Number of Comments 1

Comment 1: You are right Gregg. We all indeed had trouble crossing. Thank you for sharing your experience with us! | By Sreyoshi C

Idea Title: Walking Audit.

Number of Seconds 0

Number of Comments 0

Idea Title: I was standing at the corner of Pershing Blvd and Duff Ave. waiting for the traffic to clear so I could cross. The speed of the

Number of Seconds 0

Number of Comments 1

Comment 1: Inspired | By Annette W

Idea Title: A person crossing in a wheel chair almost got hit by a speeding vehicle. There are no pedestrian crossing signs or safe islands.

Number of Seconds 0

Number of Comments 0

Topic Name: How walkable is Pershing? You decide!

Idea Title: I like the idea of treescape along the corridor. Medians as wel

Idea Detail: I think you could have tree lined medians along the corridor which also allow turning access. This would help alleviate some of the speeding and allow pedestrians and cyclists to be more safe.

Idea Author: Jeff W

Number of Seconds 0

Number of Comments 0

Idea Title: It is not safe.

Idea Detail: Speed limit needs to change from 35 to 20 on Pershing Blvd. Between Morrie and Alexander Ave. A Electronic Pedestrian Crossing is needed in the area. Trees may be a hazard if planted on the sidewalk area.

Idea Author: Annette W

Number of Seconds 0

Number of Comments 1

Comment 1: I work downtown. I have to cross Pioneer near the library. Speed limit is 20mph. No one drives 20mph, and if you are walking across the street, people do not slow down, they don't stop. Good luck on Pershing Blvd...We have laws in place, but no enforcement. | By Faith M

Idea Title: ADA access, Electronic Pedestrian Crossing, Cross Walks I.D.,

Idea Detail: Side walks need to be ADA Compatible and in compliance for this area. In front do Diary Queen there is an issue. Signage for cross walks needed and should be painted to identify that pedestrian crossing. There are no bike lanes visible in the area. The speed limit in the area needs changed and decreased to 20.

Idea Author: Annette W

Number of Seconds 0

Number of Comments 0

Topic Name: What are your ideas for making Pershing a distinct commercial district?

Idea Title: Banners and Lighting

Idea Detail: These would help unify the corridor to create the sense of one commercial district.

Idea Author: Ronnie Z

Number of Seconds 0

Number of Comments 0

Topic Name: Photo Share from Public Meeting

Idea Title: Great audience and great conversation!

Number of Seconds 0

Number of Comments 0

Idea Title: Design team

Number of Seconds 0

Number of Comments 0

Idea Title: Engaged community members

Number of Seconds 0

Number of Comments 0

Idea Title: Weighing in on illustrations

Number of Seconds 0

Number of Comments 0

Idea Title: Sharing of ideas

Number of Seconds 0

Number of Comments 0

Idea Title: Off to a great start!

Number of Seconds 0

Number of Comments 0

Topic Name (Instant Poll): Safety Concerns

Idea Title: Pedestrians

Number of Seconds 0

Idea Title: Bicyclists

Number of Seconds 0

Idea Title: Vehicles

Number of Seconds 0

Comments

Number of Comments 0

Topic Name (Instant Poll): Tell us about your walking experience

Idea Title: Very safe/comfortable

Number of Seconds 0

Idea Title: Moderately safe/comfortable

Number of Seconds 0

Idea Title: Not at all safe/comfortable

Number of Seconds 0

Comments

Number of Comments 0

Topic Name (Instant Poll): Improving Pedestrian Safety and Comfort

Idea Title: Very willing

Number of Seconds 0

Idea Title: Moderately willing

Number of Seconds 0

Idea Title: Not at all willing

Number of Seconds 0

Idea Title: Does not matter

Number of Seconds 0

Comments

Number of Comments 0

Topic Name (Instant Poll): Crossing Lincolnway

Idea Title: There is adequate time to cross

Number of Seconds 0

Idea Title: There is just about enough time to cross

Number of Seconds 0

Idea Title: There is not enough time to cross

Number of Seconds 0

Comments

Number of Comments 0

Survey: Lincolnway 3-Lane Design Option

Question: Would you prefer Lincolnway to be a 3-Lane roadway?

Yes : 0

No : 0

Comments

Number of Comments 0

Survey: Lincolnway 5-Lane Design Option

Question: Would you prefer Lincolnway to be a 5-Lane roadway?

Yes : 0

No : 0

Comments

Number of Comments 0

Survey: Lincolnway Hybrid Design Option

Question: Would you prefer the Hybrid Design Option for Lincolnway?

Yes : 0

No : 0

Comments

Number of Comments 0

Newspaper Article

WyomingTribuneEagle
WYOMING NEWS .com

66°F
Partly Cloudy

Thursday, July 9, 2015
5 Day Forecast
Regional Road Conditions

Rally seeks crosswalk at "unsafe" intersection of Pershing, Duff

CHEYENNE - About a dozen local residents and business owners rallied Wednesday afternoon in front of Hoy's Drugs on East Pershing Boulevard.

They gathered to raise awareness of the need for a pedestrian crosswalk across Pershing Boulevard at Duff Avenue.

They say the intersection is unsafe.

"This is about life and death," Todd Anderson said.

He is the owner of Elite Cleaners on Pershing Boulevard.

"It's a real, real challenge to get across here," Anderson said, gesturing toward the heavy lunch-time traffic zipping down Pershing Boulevard.

"It's a traffic issue and a speeding issue, big time. It's dangerous. There have been children hit (by

cars) in past few years."

Dr. Marty Carroll, an optometrist at the Cheyenne Vision Clinic near the intersection, agreed it can be dangerous to cross the street on foot.

"This is a community area, and there are a lot of older people who live around here who need to get to Hoy's (Drugs)," he said.

"I've seen an older lady with a walker in the middle of the street in the snow trying to get across. Some of our (staff at the Vision Clinic) had to run out stop traffic to help her get across. That's a problem."

The situation at the intersection is made worse by the presence of nearby schools, Carroll said.

"When school gets out, you see swarms of kids trying to cross the street from Dairy Queen, and sometimes cars are speeding and don't look out for them," he said.

Gregg Crisp is a former member of the Mayor's Council for People with Disabilities and a former City Council candidate. He called on officials to do something to address the problems at the intersection.

"All we are asking for is a crosswalk; we're not asking for a lot. Step up; do your job." he said.

Crisp said he feels like safety concerns are being "pushed to the side."

"It's a low-priority item, I suppose," he added.

The Cheyenne Metropolitan Planning Organization is in the process of studying the intersection as part of a corridor improvement plan for that stretch of Pershing.

Preliminary versions of the report include recommendations for a crosswalk at the intersection.

MPO transportation planner Sreyoshi Chakraborty said she plans to present the final report to the City Council "very soon."

"Right now, we are trying to wrap up the plan and fine-tune the recommendations," she said.

Acting city engineer Nathan Beauheim added that once the final report is presented "and we get buy-in from the governing body, we will start the process of looking for funding."

In the meantime, Councilwoman Annette Williams is pushing for the council to set aside funds in the 2016 fiscal year to build the crosswalk.

She attempted Wednesday to amend the city's 2016 fiscal year budget proposal to include nearly $78,000 in funding to build the crosswalk.

The amendment was shot down by the council's Committee of the Whole.

MPO director Tom Mason said the budget amendment was "a little premature" given that the

Pershing Boulevard corridor plan has yet to be completed.

The council has the ability to reappropriate funds to pay for the crosswalk after the budget is approved later this month.

Published on: Thursday, Jun 04, 2015 - 12:02:17 am MDT

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Bike-Ped Audit Comments

Pershing Boulevard Complete Streets Plan

Bicycle/Pedestrian Safety Audit

June 18, 2014 | 11:30pm – 1:30pm

Meet at Dairy Queen - 1038 E. Pershing Boulevard

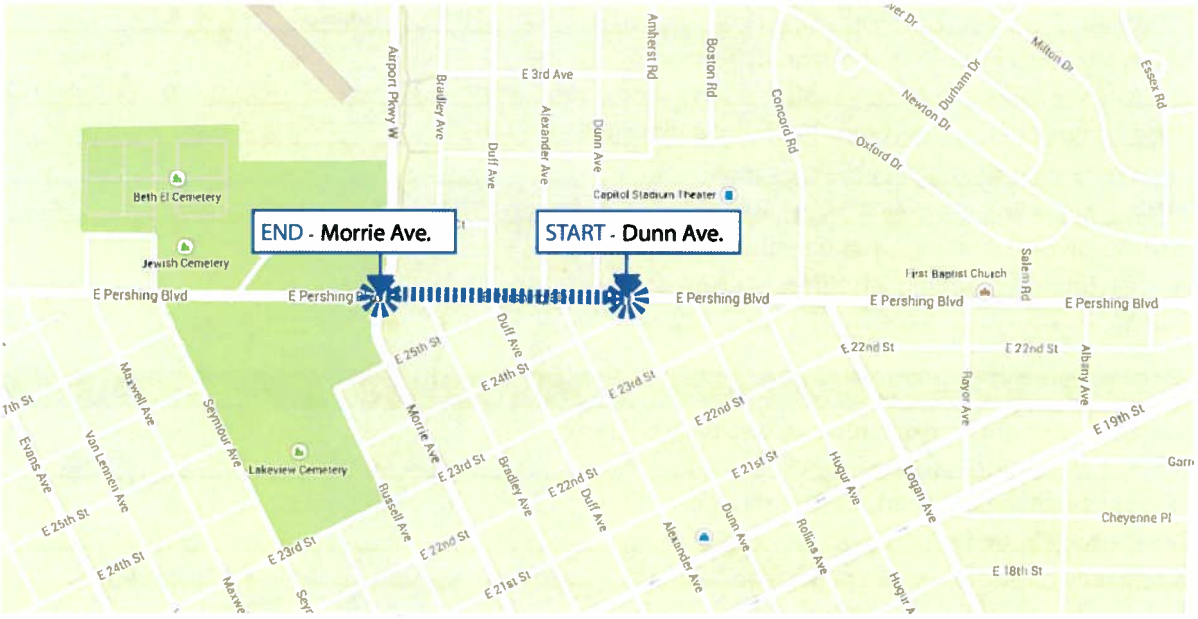
Agenda

Objective:

To address the safety of bicycle, pedestrian, and wheelchair users along Pershing Boulevard

Estimated Times:

11:30pm	Welcome and Introductions
11:35pm	Review Safety, Walking Route, Checklist
11:45pm	Walking Audit
12:45pm	Discuss Field Observations and Potential Design Solutions
1:00pm	Wrap Up



Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	Yes.		
What is the general sidewalk condition (in terms of surface and obstructions)?	Good Condition		
Do the sidewalks connect to key destinations?	yes.		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?		NO. Accessibility comes @ Dyer & Pershing	
Do driveways create frequent conflicts with vehicle traffic?	Yes. Turning lanes @ DQ & Hay Day		
Are there any problems with vehicles parking on the sidewalk?	NO.		
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?	NO		
Are the sidewalks maintained during the winter months and if so by who?	Property owners		

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?	none. Stop Sign on Dyer & Pershing.	need a yes	
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?	NO. There are NONE. Need Pedestrian Crossings on several streets		
Are the crossings signalized, stop controlled or signed if uncontrolled?	Both		
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?	yes. Speed limit 35 traffics needs to be slowed down.		
If signalized, do the crossings include countdown pedestrian signals?	NO. Pedestrian Cross walk on morie need to be Stripped		
Are median refuge islands or curb extensions (bulb outs) present?	no.		
Are there concerns regarding drainage at the crossings?			
Are there pedestrian ramps and are they ADA accessible?	NO Ramps on Alexander Ave. East Dyer & Pershing		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?	NONE		

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?	all of the above. Business Area & Residential Area		
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?	NO.		
Do pedestrians regularly misuse or ignore pedestrian facilities?	on this day of the walk that it is hard to determine.		

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?			NONE
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?			Traffic Signal on Morrie
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?			yes.
Are the signs in adequate working condition for day and night time conditions?			What do you mean by this? Do they reflect well? yes.

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?			None available
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?			

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?			No. Pedestrian crossing on Pershing only Traffic lights on Morrie
Is the sidewalk adequately lit?			
Are they any dark locations that pose a personal security issue?			

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?			No. To close to sidewalk
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?			No. A Citizen in a wheel Chair almost got hit by a motoris
Can pedestrians (including small children) see approaching vehicles?			yes.
Are there temporary or permanent obstructions near the crossing facilities?			On Duff Ave & Pershing The business on the East side obstructs vision
Are the sight lines between pedestrians and drivers at conflict points adequate?			to on coming vehicles coming from the East.

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?			Business & Residential somewhat
Are there seats and/or rest spots for pedestrians?			None
Are there drinking taps for pedestrians?			None
Does the pedestrian environment provide shelter and shade?			None
Is the pedestrian environment integrated with adjacent land uses?			Business & Residential yes.

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings? No. Empty Bldg. (1)			
Are there any loiterers or suspicious activity in the area? None			
Is there any graffiti or trash along the corridor? None			
Are there any unleashed dogs or aggressive dogs along the corridor? None			

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention? Traffic light Morrie Ave & Pershing			
What is the width of the bike lane or shoulder? None			
What is the pavement condition within the shoulder/outside travel lane? Good			
How are cyclists detected at signalized intersections? ~~[illegible]~~ Same as Pedestrian / traffic light on Morrie			
Are detection zones marked/stenciled? No.			
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections? No. Bicyclist marking			
What travel speed are the traffic signals currently coordinated for?			
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards? Duff & Pershing's Corner needs improvement			
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists? Yes.			
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?	Yes & No / Traffic light on Morrie Ave		
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel? No! why are you concerned for Bicycle travel This area need to be Safe for Pedestrians Crossings to Business also.			

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

ADDITIONAL OBSERVATIONS

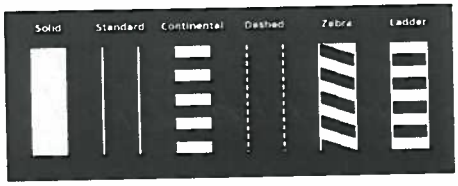
1. Duff Ave & E Pershing Blvd. Does not accomadate persons in wheel chairs. Needs to be Addressed NO ADA safety crossing
2. Need Pedestrian Crossing Signals on Duff & E. Pershing & Traffic Signal.
3. D.Q Dairy Queen Owner manager approached & Stated that he will not cross Duff Ave & E Pershing Blvd. unless he drives his car accross to get to the other side.
4. The area in General is in good Shape new Side walks & Roadway.
5. The Concern from the Pedestrian & for the businesses is the cross walks in the area are not marked & Traffic ignores Pedestrians trying to Cross.
6. Speed limit is to high in this area. In certain areas it needs to be at 20 miles per hour.
7. Lets Get Pedestrian Crossing lights & n Traffic lights & Speed Limit Changed on this roadway.

Thank You!

Get these projects Started on Morrie Ave. & Duff it would be Greatly Appreciated!

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Toolbox

TOOL	DESCRIPTION	BENEFITS	APPLICATION/ CONSIDERATION	COST
Marked Crosswalk  *Image source: www.walkinginfo.org/pedsafe/*	Provide designated pedestrian crossings at: • Pedestrian generators • Crossings with significant pedestrian volumes (at least 15 per hour) • Crossings with high vehicle-pedestrian collisions	Signal a clear "channel" for pedestrian pathways to both pedestrians and vehicles	Marked crosswalks alone should not be installed on multi-lane roads with more than about 10,000 vehicles/ day.	$
High-Visibility Signs and Markings  *Image source: http://mutcd.fhwa.dot.gov*	Includes a family of crosswalk striping styles such as the "ladder" and the "continental" High-visibility colored signs are posted at crossings to increase driver awareness of the pedestrian crossing	Increase driver awareness of unexpected condition or location where drivers need to exercise a higher level of caution based on potential conflicts with more vulnerable road users	Beneficial in areas where drivers might not expect a pedestrian crossing or where a higher level of driver attention is required due to potential pedestrian and bicycle conflicts	$
Advanced Yield Lines  *Image source: www.saferoutesinfo.org*	Standard white yield limit lines are placed in advance of marked, uncontrolled crosswalks.	Increases the pedestrian's visibility to motorists Reduces the number of vehicles encroaching on the crosswalk Indicates to drivers where to stop	Useful in areas where pedestrian visibility is low and in areas with aggressive drivers Addresses the multiple-threat collision on multi-lane roads.	$

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Marked Crosswalk	☑	☐	☐	☐
High Visibility Signs and Markings	☑	☐	☐	☐
Advanced Yield Lines	☑	☐	☐	☐
In-Street Pedestrian Crossing Signs	☑	☐	☐	☐
Curb Extension/ Bulb Outs	☑	☐	☐	☐
Reduced Curb Radii	☐	☐	☐	☐
Raised Crosswalks	☑	☐	☐	☐
Median Pedestrian Island	☑	☐	☐	☐
Staggered Median Pedestrian Island	☑	☐	☐	☐
In-Roadway Warning Lights	☑	☐	☐	☐
Overhead Flashing Beacons	☑	☐	☐	☐
Rapid Flash Beacons	☑	☐	☐	☐
Pedestrian Hybrid Beacon	☑	☐	☐	☐
Pedestrian Countdown Signs	☑	☐	☐	☐
Pedestrian Overpass/ Underpass	☐	☐	☐	☐
Sidewalk Bikes Permitted	☐	☐	☐	☐
Buffered or Protected Bike Lane	☐	☐	☐	☐
Bicycle Lane	☐	☐	☐	☐
Marked Shared Lane (Sharrow)	☐	☐	☐	☐
Paved Shoulder	☐	☐	☐	☐
~~Bike/Bus Lane~~	☐	☐	☐	☒
Bicycle Detection	☐	☐	☐	☐
Leading Pedestrian Intervals	☐	☐	☒	☐
Protected Left Turn Phasing	☑	☐	☐	☐
No Turn on Red (signs)	☐	☐	☐	☐

Traffic Speed to High to place

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Way-finding Signs	☑	☐	☐	☐
Signal Coordination (bicycle progression)	☐	☐	☐	☐
Lagging Left Turns	☐	☑	☐	☐
Retiming Clearance Intervals	☐	☐	☐	☐
Pedestrian Safety Blitzes	☑	☐	☐	☐
Road Diet (aka Lane Reduction)	☐	☐	☐	☐
Lane Diets	☐	☐	☐	☐
Sidewalks	☐	☐	☐	☐
Corridor Lighting	☑	☐	☐	☐
Landscape Buffer	☑	☐	☐	☐
Crosswalks (at bus stops)	☑	☐	☐	☐
Shelters	☑	☐	☐	☐
Benches	☑	☐	☐	☐

ADDITIONAL OBSERVATIONS

My observation is 1. Duff AVE & Pershing Blvd. Needs a Traffic & Pedestrian Crossing. 2. Observed a Pedestrian in a wheel Chair Crossing on Duff Ave & Pershing Blvd Almost get hit. 3. WATched several Pedestrians Almost Get hit Crossing the intersection ~~[illegible]~~ 4. Speed of Traffic to high 5. NO Transit bus stop areas for Pick up & Drop off. 6. North of Pershing its difficult for a vehicle to make a left turn. 7. Not many Speed limit Signs Posted

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	✓		
What is the general sidewalk condition (in terms of surface and obstructions)?			generally poor unless replaced obstructions
Do the sidewalks connect to key destinations?		✓	
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?		✓	no at level x-ing of a dr!
Do driveways create frequent conflicts with vehicle traffic?	W		Alex & Pers Drive thru @ Corna
Are there any problems with vehicles parking on the sidewalk?			
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?		✓	
Are the sidewalks maintained during the winter months and if so by who?	✓ & ✓		by adjacent property owners

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?	✓		no striping at signals & nowhere else
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?		✓	ramps aren't correct & skewed
Are the crossings signalized, stop controlled or signed if uncontrolled?	✓		no bulb outs - large radii
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?	✓		
If signalized, do the crossings include countdown pedestrian signals?	✓		
Are median refuge islands or curb extensions (bulb outs) present?		✓	
Are there concerns regarding drainage at the crossings?		✓	
Are there pedestrian ramps and are they ADA accessible?	✓		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?		✓	

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?			
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?			
Do pedestrians regularly misuse or ignore pedestrian facilities?			

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		✓	
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		✓	n/a
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?	✓		for most part
Are the signs in adequate working condition for day and night time conditions?			?

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?			none @ curb + pad although curb ramps are directly across
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?			

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?	✓	~~✓~~	marley
Is the sidewalk adequately lit?			
Are they any dark locations that pose a personal security issue?	✓		by vacant business

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		✓	
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?			
Can pedestrians (including small children) see approaching vehicles?	✓		
Are there temporary or permanent obstructions near the crossing facilities?	✓		curbs at intersection steps for entrances
Are the sight lines between pedestrians and drivers at conflict points adequate?			

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?		✓	
Are there seats and/or rest spots for pedestrians?	✓	✓	by dentist in alley
Are there drinking taps for pedestrians?		✓	
Does the pedestrian environment provide shelter and shade?			
Is the pedestrian environment integrated with adjacent land uses?		✓	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?	✓		w/ weeds
Are there any loiterers or suspicious activity in the area?		✓	
Is there any graffiti or trash along the corridor?		✓	
Are there any unleashed dogs or aggressive dogs along the corridor?		✓	

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?			
What is the width of the bike lane or shoulder?			
What is the pavement condition within the shoulder/outside travel lane?			
How are cyclists detected at signalized intersections?			
Are detection zones marked/stenciled?			
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?			
What travel speed are the traffic signals currently coordinated for?			
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards?			
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?			
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?			
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?			

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

ADDITIONAL OBSERVATIONS

planters & walls give more of a sense of safety from cars; however can reduce ped space & be obstructive

Not comfortable because traffic is moving fast & very close to sidewalks

Only self activated to cross pershx ing Morrii always has ped signal

Not enough time to cross at Morrie Pershing @

Bryan Cook
City Council

Pershing Boulevard Complete Streets Plan

Bicycle/Pedestrian Safety Audit

June 18, 2014 | 11:30pm – 1:30pm

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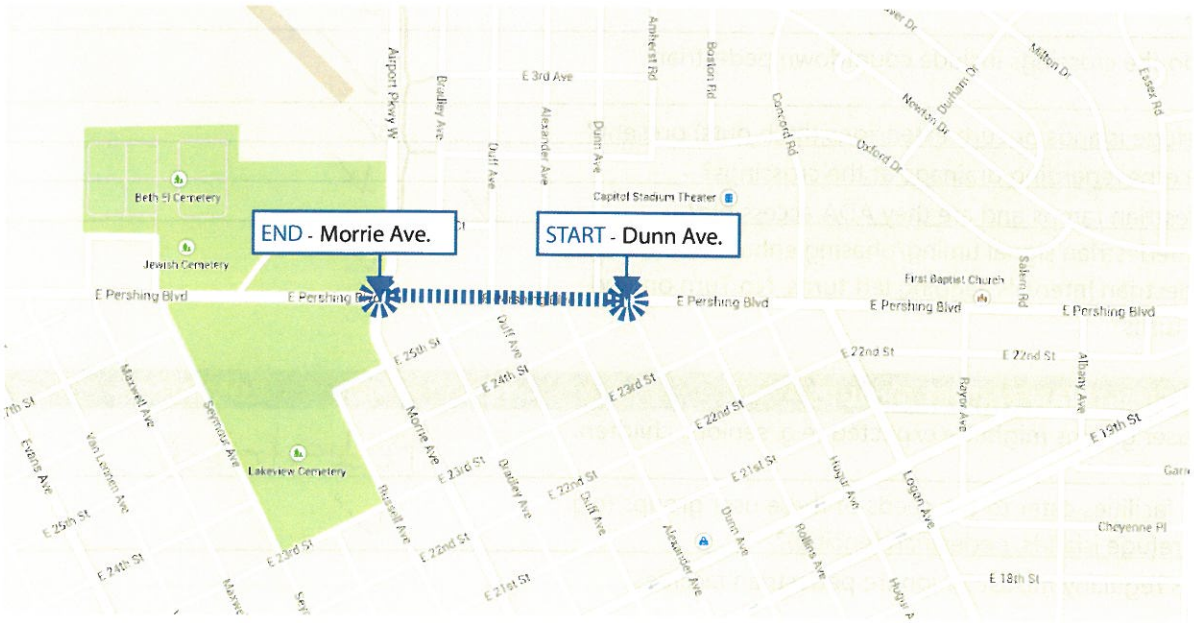


FEHR & PEERS

June 2014

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	✓		
What is the general sidewalk condition (in terms of surface and obstructions)?	✓		
Do the sidewalks connect to key destinations?	✓		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?	✓		
Do driveways create frequent conflicts with vehicle traffic?	✓		
Are there any problems with vehicles parking on the sidewalk?		✓	
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?		✓	
Are the sidewalks maintained during the winter months and if so by who?		✓	

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?			None
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?		✓	
Are the crossings signalized, stop controlled or signed if uncontrolled?		✓	
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?		✓	
If signalized, do the crossings include countdown pedestrian signals?		✓	
Are median refuge islands or curb extensions (bulb outs) present?		✓	
Are there concerns regarding drainage at the crossings?		✓	
Are there pedestrian ramps and are they ADA accessible?	✓		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?		✓	

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?			Pedestrians
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?		✓	
Do pedestrians regularly misuse or ignore pedestrian facilities?	✓		

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		X	
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		X	
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?		X	
Are the signs in adequate working condition for day and night time conditions?		X	

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?		X	NA
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?		X	

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?		X	
Is the sidewalk adequately lit?		X	
Are they any dark locations that pose a personal security issue?	X		

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		X	
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?		X	
Can pedestrians (including small children) see approaching vehicles?		X	Buildings in the way
Are there temporary or permanent obstructions near the crossing facilities?		X	
Are the sight lines between pedestrians and drivers at conflict points adequate?		X	

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?		X	
Are there seats and/or rest spots for pedestrians?		X	
Are there drinking taps for pedestrians?		X	
Does the pedestrian environment provide shelter and shade?		X	
Is the pedestrian environment integrated with adjacent land uses?		X	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?		X	
Are there any loiterers or suspicious activity in the area?		X	
Is there any graffiti or trash along the corridor?		X	
Are there any unleashed dogs or aggressive dogs along the corridor?		X	

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?		X	
What is the width of the bike lane or shoulder?		X	NA
What is the pavement condition within the shoulder/outside travel lane?	Good		
How are cyclists detected at signalized intersections?			NA
Are detection zones marked/stenciled?			NA
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?			NA
What travel speed are the traffic signals currently coordinated for?			NA
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards?			No
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?			No
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?	Yes		
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?		X	

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Marked Crosswalk	☐	☒	☐	☐
High Visibility Signs and Markings	☐	☐	☒	☐
Advanced Yield Lines	☐	☐	☒	☐
In-Street Pedestrian Crossing Signs	☐	☐	☒	☐
Curb Extension/ Bulb Outs	☐	☐	☒	☐
Reduced Curb Radii	☐	☐	☒	☐
Raised Crosswalks	☐	☐	☒	☐
Median Pedestrian Island	☐	☒	☐	☐
Staggered Median Pedestrian Island	☐	☒	☐	☐
In-Roadway Warning Lights	☐	☒	☐	☐
Overhead Flashing Beacons	☐	☒	☐	☐
Rapid Flash Beacons	☐	☒	☐	☐
Pedestrian Hybrid Beacon	☐	☒	☐	☐
Pedestrian Countdown Signs	☐	☒	☐	☐
Pedestrian Overpass/ Underpass	☐	☒	☐	☐
Sidewalk Bikes Permitted	☐	☒	☐	☐
Buffered or Protected Bike Lane	☐	☐	☒	☐
Bicycle Lane	☐	☐	☒	☐
Marked Shared Lane (Sharrow)	☐	☐	☒	☐
Paved Shoulder	☐	☐	☒	☐
Bike/Bus Lane	☐	☐	☒	☐
Bicycle Detection	☐	☐	☒	☐
Leading Pedestrian Intervals	☐	☐	☒	☐
Protected Left Turn Phasing	☐	☐	☒	☐
No Turn on Red (signs)	☐	☒	☐	☐

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Way-finding Signs	☒	☐	☐	☐
Signal Coordination (bicycle progression)	☐	☐	☒	☐
Lagging Left Turns	☐	☒	☐	☐
Retiming Clearance Intervals	☐	☒	☐	☐
Pedestrian Safety Blitzes	☐	☐	☐	☐
Road Diet (aka Lane Reduction)	☐	☐	☒	☐
Lane Diets	☐	☐	☒	☐
Sidewalks	☒	☐	☐	☐
Corridor Lighting	☒	☐	☐	☐
Landscape Buffer	☐	☒	☒	☐
Crosswalks (at bus stops)	☐	☒	☐	☐
Shelters	☐	☒	☐	☐
Benches	☐	☒	☐	☐

ADDITIONAL OBSERVATIONS

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	✓		
What is the general sidewalk condition (in terms of surface and obstructions)?			Good
Do the sidewalks connect to key destinations?	✓		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?	✓		
Do driveways create frequent conflicts with vehicle traffic?		✓	
Are there any problems with vehicles parking on the sidewalk?		✓	
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?	✓		
Are the sidewalks maintained during the winter months and if so by who?			

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?			Cross @ risk
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?	✓		
Are the crossings signalized, stop controlled or signed if uncontrolled?	✓		
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?		✓	
If signalized, do the crossings include countdown pedestrian signals?		✓	
Are median refuge islands or curb extensions (bulb outs) present?		✓	
Are there concerns regarding drainage at the crossings?		✓	
Are there pedestrian ramps and are they ADA accessible?	✓		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?	✓		

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?			ALL
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?		✓	
Do pedestrians regularly misuse or ignore pedestrian facilities?	✓		

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?	✓		
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?	✓		
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?	✓		
Are the signs in adequate working condition for day and night time conditions?	✓		

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?	✓		
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?	✓		

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?	✓		
Is the sidewalk adequately lit?		✓	
Are they any dark locations that pose a personal security issue?			

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		✓	
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?	✓		
Can pedestrians (including small children) see approaching vehicles?	✓		
Are there temporary or permanent obstructions near the crossing facilities?		✓	
Are the sight lines between pedestrians and drivers at conflict points adequate?	✓		

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?	✓		
Are there seats and/or rest spots for pedestrians?		✓	
Are there drinking taps for pedestrians?		✓	
Does the pedestrian environment provide shelter and shade?		✓	
Is the pedestrian environment integrated with adjacent land uses?		✓	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	Yes		
What is the general sidewalk condition (in terms of surface and obstructions)?	Fair		
Do the sidewalks connect to key destinations?	X		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?		X	
Do driveways create frequent conflicts with vehicle traffic?	X		
Are there any problems with vehicles parking on the sidewalk?	N/A		no parking E Pershing
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?	X		
Are the sidewalks maintained during the winter months and if so by who?	X		City + Business owner

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?		X	only at signalized intersection
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?	X		
Are the crossings signalized, stop controlled or signed if uncontrolled?	X		
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?	X		
If signalized, do the crossings include countdown pedestrian signals?		X	
Are median refuge islands or curb extensions (bulb outs) present?		X	
Are there concerns regarding drainage at the crossings?	X		
Are there pedestrian ramps and are they ADA accessible?	X		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?	X		In areas

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?	—		
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?		X	
Do pedestrians regularly misuse or ignore pedestrian facilities?			

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?	✓		
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		X	
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?	✓		
Are the signs in adequate working condition for day and night time conditions?	X		

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?	✓		
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?	X		

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?		X	
Is the sidewalk adequately lit?		X	
Are they any dark locations that pose a personal security issue?	X		

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		✓	
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?	X		
Can pedestrians (including small children) see approaching vehicles?		X	
Are there temporary or permanent obstructions near the crossing facilities?		X	
Are the sight lines between pedestrians and drivers at conflict points adequate?		X	

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?	X		
Are there seats and/or rest spots for pedestrians?		X	
Are there drinking taps for pedestrians?		X	
Does the pedestrian environment provide shelter and shade?		X	
Is the pedestrian environment integrated with adjacent land uses?		X	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?		X	
Are there any loiterers or suspicious activity in the area?	X		
Is there any graffiti or trash along the corridor?	X		
Are there any unleashed dogs or aggressive dogs along the corridor?	X		

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?			
What is the width of the bike lane or shoulder?		X	none
What is the pavement condition within the shoulder/outside travel lane?	X		Good
How are cyclists detected at signalized intersections?		X	
Are detection zones marked/stenciled?	X		
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?		X	
What travel speed are the traffic signals currently coordinated for?			35 mph
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards?		X	
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?		X	
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?			
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?		X	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

ADDITIONAL OBSERVATIONS

E pershing is mainly 4 vehicles. while sight distances are not correct for feeder roads, Little Can be done to Change. Pershing handles a tremendous amount of traffic and to narrow ~~[illegible]~~ or add extra traffic Control would disrupt the Flow and increase Crashes. Crashes are Low at this point at in time.

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Marked Crosswalk	☒	☐	☐	☐
High Visibility Signs and Markings	☒	☐	☐	☐
Advanced Yield Lines	☐	☒	☐	☐
In-Street Pedestrian Crossing Signs	☐	☐	☒	☐
Curb Extension/ Bulb Outs	☐	☐	☐	☐
Reduced Curb Radii	☒	☐	☐	☐
Raised Crosswalks	☐	☐	☒	☐
Median Pedestrian Island	☐	☐	☒	☐
Staggered Median Pedestrian Island	☐	☐	☐	☒
In-Roadway Warning Lights	☐	☒	☐	☒
Overhead Flashing Beacons	☐	☐	☐	☐
Rapid Flash Beacons	☐	☐	☐	☒
Pedestrian Hybrid Beacon	☐	☐	☐	☐
Pedestrian Countdown Signs	☐	☐	☒	☐
Pedestrian Overpass/ Underpass	☐	☐	☐	☐
Sidewalk Bikes Permitted	☒	☐	☐	☐
Buffered or Protected Bike Lane	☐	☐	☐	☒
Bicycle Lane	☐	☐	☐	☒
Marked Shared Lane (Sharrow)	☐	☐	☐	☒
Paved Shoulder	☐	☐	☐	☒
Bike/Bus Lane	☐	☐	☐	☒
Bicycle Detection	☐	☐	☐	☒
Leading Pedestrian Intervals	☐	☐	☐	☒
Protected Left Turn Phasing	☐	☐	☐	☒
No Turn on Red (signs)	☐	☐	☐	☒

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Way-finding Signs	☐	☐	☐	☒
Signal Coordination (bicycle progression)	☐	☐	☐	☒
Lagging Left Turns	☐	☐	☐	☑
Retiming Clearance Intervals	☐	☐	☐	☐
Pedestrian Safety Blitzes	☐	☐	☐	☒
Road Diet (aka Lane Reduction)	☐	☐	☒	☐
Lane Diets	☐	☐	☐	☐
Sidewalks	☐	☒	☐	☐
Corridor Lighting	☐	☐	☒	☐
Landscape Buffer	☐	☐	☒	☐
Crosswalks (at bus stops)	☒	☐	☐	☐
Shelters	☒	☐	☐	☐
Benches	☒	☐	☐	☐

ADDITIONAL OBSERVATIONS

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	✓		
What is the general sidewalk condition (in terms of surface and obstructions)?	Good		
Do the sidewalks connect to key destinations?	✓		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?	✓		
Do driveways create frequent conflicts with vehicle traffic?		✓	
Are there any problems with vehicles parking on the sidewalk?		✓	
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?	✓		
Are the sidewalks maintained during the winter months and if so by who?	Supposed to be by adjacent property owner		

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?	X		Signalized at Main Unmarked elsewhere
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?			
Are the crossings signalized, stop controlled or signed if uncontrolled?	X		
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?		X	
If signalized, do the crossings include countdown pedestrian signals?		X	
Are median refuge islands or curb extensions (bulb outs) present?		X	
Are there concerns regarding drainage at the crossings?		X	
Are there pedestrian ramps and are they ADA accessible?	X		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?		X	

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?			
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?			
Do pedestrians regularly misuse or ignore pedestrian facilities?			

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		X	Why?
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		X	Why?
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?	X		
Are the signs in adequate working condition for day and night time conditions?	X		

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?	X		
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?	X		

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?	X		
Is the sidewalk adequately lit?	X		
Are they any dark locations that pose a personal security issue?		X	

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?	X		
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?	X		
Can pedestrians (including small children) see approaching vehicles?	X		
Are there temporary or permanent obstructions near the crossing facilities?		X	
Are the sight lines between pedestrians and drivers at conflict points adequate?	X		

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?	X		
Are there seats and/or rest spots for pedestrians?		X	
Are there drinking taps for pedestrians?		X	Why?
Does the pedestrian environment provide shelter and shade?	X		
Is the pedestrian environment integrated with adjacent land uses?	X		

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?		X	
Are there any loiterers or suspicious activity in the area?	X		Wearing yellow safety vests
Is there any graffiti or trash along the corridor?		X	
Are there any unleashed dogs or aggressive dogs along the corridor?		X	

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?			
What is the width of the bike lane or shoulder?			
What is the pavement condition within the shoulder/outside travel lane?			
How are cyclists detected at signalized intersections?			
Are detection zones marked/stenciled?			
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?		N/A	
What travel speed are the traffic signals currently coordinated for?			
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards?			
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?			
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?			
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?			

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

ADDITIONAL OBSERVATIONS

A better street could be built with unlimited money and cooprative property owners but what is present is very good considering the constraints.

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Marked Crosswalk	☐	☒	☐	☐
High Visibility Signs and Markings	☐	☒	☐	☐
Advanced Yield Lines	☐	☐	☒	☐
In-Street Pedestrian Crossing Signs	☐	☐	☒	☐
Curb Extension/ Bulb Outs	☐	☐	☒	☐
Reduced Curb Radii	☐	☐	☒	☐
Raised Crosswalks	☐	☐	☒	☐
Median Pedestrian Island	☐	☒	☐	☐
Staggered Median Pedestrian Island	☐	☒	☐	☐
In-Roadway Warning Lights	☐	☐	☒	☐
Overhead Flashing Beacons	☐	☐	☒	☐
Rapid Flash Beacons	☐	☒	☐	☐
Pedestrian Hybrid Beacon	☐	☐	☒	☐
Pedestrian Countdown Signs	☐	☒	☐	☐
Pedestrian Overpass/ Underpass	☐	☐	☒	☐
Sidewalk Bikes Permitted	☐	☐	☒	☐
Buffered or Protected Bike Lane	☐	☐	☒	☐
Bicycle Lane	☐	☐	☒	☐
Marked Shared Lane (Sharrow)	☐	☐	☒	☐
Paved Shoulder	☐	☐	☒	☐
Bike/Bus Lane	☐	☐	☒	☐
Bicycle Detection	☐	☐	☒	☐
Leading Pedestrian Intervals	☐	☐	☒	☐
Protected Left Turn Phasing	☐	☐	☒	☐
No Turn on Red (signs)	☐	☐	☒	☐

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Way-finding Signs	☐	☐	☑	☐
Signal Coordination (bicycle progression)	☐	☐	☑	☐
Lagging Left Turns	☐	☑	☐	☐
Retiming Clearance Intervals	☐	☑	☐	☐
Pedestrian Safety Blitzes	☐	☐	☑	☐
Road Diet (aka Lane Reduction)	☐	☐	☑	☐
Lane Diets	☐	☐	☑	☐
Sidewalks	☑	☐	☐	☐
Corridor Lighting	☐	☑	☐	☐
Landscape Buffer	☐	☐	☑	☐
Crosswalks (at bus stops)	☐	☑	☐	☐
Shelters	☐	☑	☐	☐
Benches	☐	☑	☐	☐

ADDITIONAL OBSERVATIONS

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	✓		Not wide enough
What is the general sidewalk condition (in terms of surface and obstructions)?			uneven
Do the sidewalks connect to key destinations?	✓		challenging for ADA
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?	✓		not wide, feels unsafe
Do driveways create frequent conflicts with vehicle traffic?	✓		
Are there any problems with vehicles parking on the sidewalk?		✓	too close to intersections
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?		✓	
Are the sidewalks maintained during the winter months and if so by who?		✓	not cleared well, maintained by business

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?		✓	No crossings provided
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?		✓	
Are the crossings signalized, stop controlled or signed if uncontrolled?		✓	
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?	✓		
If signalized, do the crossings include countdown pedestrian signals?		✓	
Are median refuge islands or curb extensions (bulb outs) present?		✓	
Are there concerns regarding drainage at the crossings?		✓	
Are there pedestrian ramps and are they ADA accessible?	✓		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?		✓	

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?			School children, ADA, Older customers
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?		✓	
Do pedestrians regularly misuse or ignore pedestrian facilities?			no ped facilities exist

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		✓	
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		✓	
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?		✓	
Are the signs in adequate working condition for day and night time conditions?			mostly, but not ideal

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?		✓	bad visibility at night.
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?		✓	

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?		✓	
Is the sidewalk adequately lit?		✓	
Are they any dark locations that pose a personal security issue?			No security issue identified by business

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		✓	sight D issue
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?	✓		A LONG Time
Can pedestrians (including small children) see approaching vehicles?		✓	Not very well
Are there temporary or permanent obstructions near the crossing facilities?	✓		Buildings & parking too close
Are the sight lines between pedestrians and drivers at conflict points adequate?		✓	

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?		✓	
Are there seats and/or rest spots for pedestrians?		✓	
Are there drinking taps for pedestrians?		✓	
Does the pedestrian environment provide shelter and shade?		✓	
Is the pedestrian environment integrated with adjacent land uses?		✓	Acts like a barrier

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

ADDITIONAL OBSERVATIONS

Pershing / Duff — sight distance, logical location for crosswalk, busiest for peds, feels unsafe, more parking back, tough for ADA navigation

Pershing / Alexander — sidewalk too narrow, no room for bikes, skewed

Pershing / Moore — Driveways into Pershing dangerous
Transit stop does not feel safe for peds and ADA
Crossing phase too short
Not a pleasant or protected environment
Popular route for runners
Driveways are a big issue for ADA,
Crossing the street, no crosswalks.
High volumes of school kids and neighborhoods users.
Lighting — not good in some spots.

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Marked Crosswalk	☐	☑	☐	☐
High Visibility Signs and Markings	☐	☑	☐	☐
Advanced Yield Lines	☐	☑	☐	☐
In-Street Pedestrian Crossing Signs	☐	☑	☐	☐
Curb Extension/ Bulb Outs	☐	☑	☐	☐
Reduced Curb Radii	☐	☑	☐	☐
Raised Crosswalks	☐	☑	☐	☐
Median Pedestrian Island	☐	☑	☐	☐
Staggered Median Pedestrian Island	☐	☑	☐	☐
In-Roadway Warning Lights	☐	☑	☐	☐
Overhead Flashing Beacons	☐	☑	☐	☐
Rapid Flash Beacons	☐	☑	☐	☐
Pedestrian Hybrid Beacon	☐	☑	☐	☐
Pedestrian Countdown Signs	☐	☐	☑	☐
Pedestrian Overpass/ Underpass	☐	☐	☐	☐
Sidewalk Bikes Permitted	☑	☐	☐	☐
Buffered or Protected Bike Lane	☐	☐	☑	☐
Bicycle Lane	☐	☑	☐	☐
Marked Shared Lane (Sharrow)	☐	☐	☑	☐
Paved Shoulder	☐	☐	☑	☐
Bike/Bus Lane	☐	☐	☑	☐
Bicycle Detection	☐	☑	☐	☐
Leading Pedestrian Intervals	☐	☑	☐	☐
Protected Left Turn Phasing	☐	☑	☐	☐
No Turn on Red (signs)	☐	☑	☐	☐

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Way-finding Signs	☑	☐	☐	☐
Signal Coordination (bicycle progression)	☑	☐	☐	☐
Lagging Left Turns	☐	☑	☐	☐
Retiming Clearance Intervals	☐	☑	☐	☐
Pedestrian Safety Blitzes	☑	☐	☐	☐
Road Diet (aka Lane Reduction)	☐	☐	☑	☐
Lane Diets	☑	☐	☐	☐
Sidewalks	☑	☐	☐	☐
Corridor Lighting	☑	☐	☐	☐
Landscape Buffer	☑	☐	☐	☐
Crosswalks (at bus stops)	☑	☐	☐	☐
Shelters	☑	☐	☐	☐
Benches	☑	☐	☐	☐

ADDITIONAL OBSERVATIONS

Pershing Boulevard Complete Streets Plan

Bicycle/Pedestrian Safety Audit

June 18, 2014 | 11:30pm – 1:30pm

Meet at Dairy Queen - 1038 E. Pershing Boulevard

Jeff Wiggins

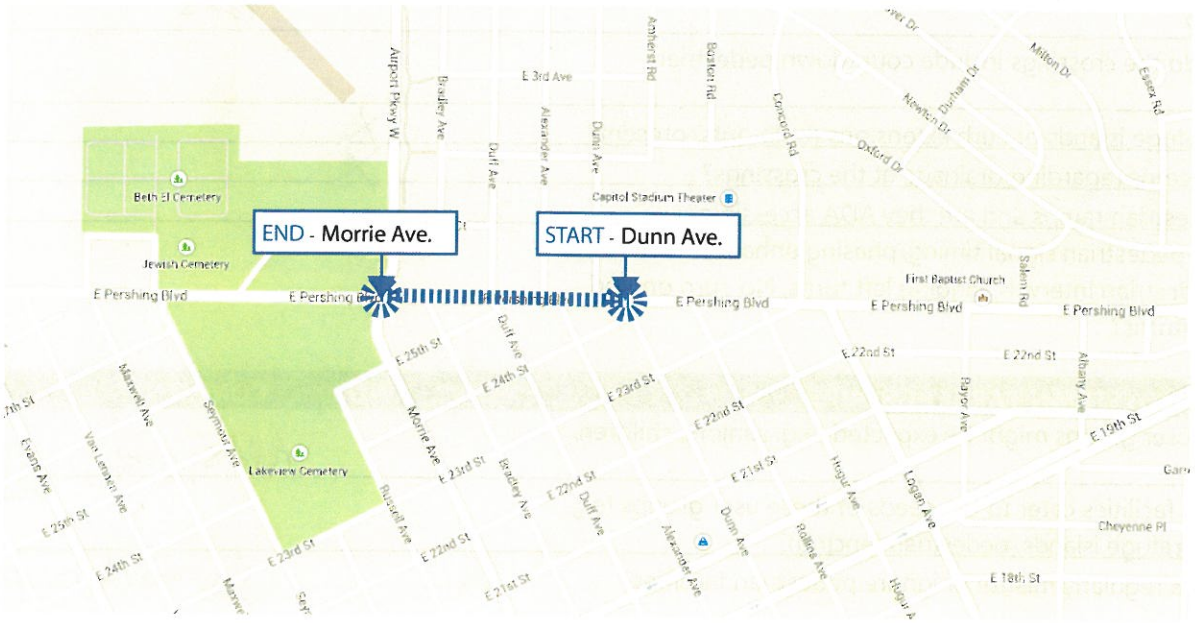
Agenda

Objective:

To address the safety of bicycle, pedestrian, and wheelchair users along Pershing Boulevard

Estimated Times:

11:30pm	Welcome and Introductions
11:35pm	Review Safety, Walking Route, Checklist
11:45pm	Walking Audit
12:45pm	Discuss Field Observations and Potential Design Solutions
1:00pm	Wrap Up



FEHR & PEERS

June 2014

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	✓		
What is the general sidewalk condition (in terms of surface and obstructions)?			mostly ok
Do the sidewalks connect to key destinations?	X		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?	X		
Do driveways create frequent conflicts with vehicle traffic?	X		
Are there any problems with vehicles parking on the sidewalk?		X	
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?	X		
Are the sidewalks maintained during the winter months and if so by who?		X	

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?			radial curb ramps + skewed intersections
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?			somewhat
Are the crossings signalized, stop controlled or signed if uncontrolled?			only at morrie others absent
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?			ok
If signalized, do the crossings include countdown pedestrian signals?			
Are median refuge islands or curb extensions (bulb outs) present?		X	
Are there concerns regarding drainage at the crossings?		X	
Are there pedestrian ramps and are they ADA accessible?	X		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?		? /	

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?			kids, srs., neighborhood residents
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?			
Do pedestrians regularly misuse or ignore pedestrian facilities?	X		jaywalking prominent

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		X	
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		X	
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?	X		
Are the signs in adequate working condition for day and night time conditions?	X		

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?			N/A
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?			N/A

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?		X	
Is the sidewalk adequately lit?			moderate
Are they any dark locations that pose a personal security issue?	X		

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?	X		
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?	X		
Can pedestrians (including small children) see approaching vehicles?	X		
Are there temporary or permanent obstructions near the crossing facilities?			wall at Hays planters at eye dr.
Are the sight lines between pedestrians and drivers at conflict points adequate?			

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?		X	
Are there seats and/or rest spots for pedestrians?			wall at hays
Are there drinking taps for pedestrians?			
Does the pedestrian environment provide shelter and shade?		X	
Is the pedestrian environment integrated with adjacent land uses?			moderately

proximity to traffic is disconcerting to peds + vehs.

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?	X	Stag, Buppint	
Are there any loiterers or suspicious activity in the area?		X	
Is there any graffiti or trash along the corridor?			misc trash
Are there any unleashed dogs or aggressive dogs along the corridor?		X	

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?		X	
What is the width of the bike lane or shoulder?			N/A
What is the pavement condition within the shoulder/outside travel lane?			moderate
How are cyclists detected at signalized intersections?			N/A
Are detection zones marked/stenciled?			N/A
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?			N/A
What travel speed are the traffic signals currently coordinated for?			?
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards?			N/A
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?			N/A
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?			N/A
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?			N/A

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

ADDITIONAL OBSERVATIONS

Proximity to traffic, narrowness of ped facilities are primary concerns.
Bike facilities are completely absent.
Surprising to see (4!) joggers in 15 minutes on sidewalk

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	✓		
What is the general sidewalk condition (in terms of surface and obstructions)?	✓		good
Do the sidewalks connect to key destinations?	✓		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?			
Do driveways create frequent conflicts with vehicle traffic?		✓	
Are there any problems with vehicles parking on the sidewalk?		✓	
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?		✓	
Are the sidewalks maintained during the winter months and if so by who?	?		

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?		✓	None
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?	N/A		
Are the crossings signalized, stop controlled or signed if uncontrolled?	N/A		
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?	✓		Difficult - Busy street no crossing
If signalized, do the crossings include countdown pedestrian signals?	N/A		
Are median refuge islands or curb extensions (bulb outs) present?		✓	
Are there concerns regarding drainage at the crossings?	✓		
Are there pedestrian ramps and are they ADA accessible?		✓	
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?		✓	

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?	✓		
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?			
Do pedestrians regularly misuse or ignore pedestrian facilities?		✓	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		✓	
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?			
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?		✓	too small
Are the signs in adequate working condition for day and night time conditions?		✓	

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?		✓	no for peds.
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?	✓		

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?		✓	
Is the sidewalk adequately lit?		✓	
Are they any dark locations that pose a personal security issue?		✓	

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		✓	No crosswalks
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?		✓	
Can pedestrians (including small children) see approaching vehicles?	✓		
Are there temporary or permanent obstructions near the crossing facilities?		✓	
Are the sight lines between pedestrians and drivers at conflict points adequate?	✓		

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?		✓	
Are there seats and/or rest spots for pedestrians?		✓	
Are there drinking taps for pedestrians?		✓	
Does the pedestrian environment provide shelter and shade?		✓	
Is the pedestrian environment integrated with adjacent land uses?		✓	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?	✓		
Are there any loiterers or suspicious activity in the area?		✓	
Is there any graffiti or trash along the corridor?		✓	
Are there any unleashed dogs or aggressive dogs along the corridor?		✓	

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?		✓	
What is the width of the bike lane or shoulder?			Done
What is the pavement condition within the shoulder/outside travel lane?			good
How are cyclists detected at signalized intersections?			No signalized intersections
Are detection zones marked/stenciled?			
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?		✓	
What travel speed are the traffic signals currently coordinated for?		N/A	
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards?		✓	
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?		✓	
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?		✓	
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?		✓	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

ADDITIONAL OBSERVATIONS

At Elite Cleaners strip mall a person who is parking there often have to back out onto Pershing, very difficult.

Narrow walkway + poor condition of asphalt at end of Hoy's & wall on west end where planter is.

Cross walk at Morrie is good for peds.

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	X		
What is the general sidewalk condition (in terms of surface and obstructions)?			Most new
Do the sidewalks connect to key destinations?	X		
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?	X		would need jet pack to cross
Do driveways create frequent conflicts with vehicle traffic?	X		
Are there any problems with vehicles parking on the sidewalk?		X	
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?	X		
Are the sidewalks maintained during the winter months and if so by who?			

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?		X	surface
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?		X	
Are the crossings signalized, stop controlled or signed if uncontrolled?		X	one-Pershing/Morrie
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?		X	
If signalized, do the crossings include countdown pedestrian signals?			
Are median refuge islands or curb extensions (bulb outs) present?		X	
Are there concerns regarding drainage at the crossings?		X	
Are there pedestrian ramps and are they ADA accessible?	X		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?			

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?	X		students
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?		X	
Do pedestrians regularly misuse or ignore pedestrian facilities?			

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		X	
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		X	
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?	X		
Are the signs in adequate working condition for day and night time conditions?	X		Most intersections are lit.

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?		X	None on side streets
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?		X	

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?	X		
Is the sidewalk adequately lit?	X		
Are they any dark locations that pose a personal security issue?		X	

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		X	Dyer/Pershing IE they look "
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?	X		
Can pedestrians (including small children) see approaching vehicles?	X		
Are there temporary or permanent obstructions near the crossing facilities?	X		
Are the sight lines between pedestrians and drivers at conflict points adequate?			

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?		X	
Are there seats and/or rest spots for pedestrians?		X	
Are there drinking taps for pedestrians?		X	
Does the pedestrian environment provide shelter and shade?		X	
Is the pedestrian environment integrated with adjacent land uses?		X	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?	X		30+ old gas station etc.
Are there any loiterers or suspicious activity in the area?		X	
Is there any graffiti or trash along the corridor?		X	
Are there any unleashed dogs or aggressive dogs along the corridor?		X	

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?		X	
What is the width of the bike lane or shoulder?			Less
What is the pavement condition within the shoulder/outside travel lane?			Good/ new
How are cyclists detected at signalized intersections?		X	
Are detection zones marked/stenciled?		X	
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?		X	
What travel speed are the traffic signals currently coordinated for?			?
Are off-street shared-use pathways designed consistent with current best practices (or CDOT) standards?		X	
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?	X		Except at Dell
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?	X		
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?		X	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIDEWALKS	YES	NO	COMMENTS
Are sidewalks provided and continuous on both sides of the street?	X		
What is the general sidewalk condition (in terms of surface and obstructions)?			GOOD
Do the sidewalks connect to key destinations?	Y		EXCEPT FOR [illegible] CROSSING PERSHING
Do the sidewalks accommodate persons with disabilities (especially at driveways and crosswalks)?	X		" " " "
Do driveways create frequent conflicts with vehicle traffic?			POSSIBLY, DEPENDING ON DRIVER BEHAVIOR
Are there any problems with vehicles parking on the sidewalk?		X	
Are the sidewalks wide enough to accommodate pedestrian queuing at transit stops/shared use/mobility aids?	Y		
Are the sidewalks maintained during the winter months and if so by who?	X		BY ADJACENT PROPERTY OWNERS

PEDESTRIAN FACILITIES & ACCESSIBILITY	YES	NO	COMMENTS
What types of pedestrian crossings are provided? Is this type of crossing consistent throughout the corridor?			NOT SPECIFICALLY
Do the pedestrian crossings meet the needs of the pedestrian (in terms of type and location)?			SOME - PARALLEL TO PERSHING
Are the crossings signalized, stop controlled or signed if uncontrolled?			STOP, EXCEPT CROSSING PERSHING
Are the crossings difficult in terms of signal timing, gaps in traffic, traffic speeds?			YES IF X-ING PERSHING
If signalized, do the crossings include countdown pedestrian signals?			YES @ MORRIE
Are median refuge islands or curb extensions (bulb outs) present?		X	
Are there concerns regarding drainage at the crossings?			SOME
Are there pedestrian ramps and are they ADA accessible?	X		
Are there any pedestrian signal timing/phasing enhancements such as Limited Pedestrian Intervals, lagging left turns, No Turn on Red, protected left turns?		X	

CATERING FOR PEDESTRIAN TARGET GROUPS	YES	NO	COMMENTS
What special user groups might be expected (e.g. seniors, children, tourists)?			
Do pedestrian facilities cater to the needs of these user groups (e.g. high visibility, refuge islands, pedestrian fencing)?		X	
Do pedestrians regularly misuse or ignore pedestrian facilities?	X		

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

SIGNING	YES	NO	COMMENTS
Are walking routes clearly signed for pedestrians (through way-finding to key destinations)?		X	
Are pedestrian routes and pedestrian facilities clearly signed to motorists (through pedestrian warning signs)?		X	
Are street name signs clearly visible at intersections for pedestrians approaching in all directions?	X	X	
Are the signs in adequate working condition for day and night time conditions?	X		

PAVEMENT MARKING	YES	NO	COMMENTS
Is the pavement marking for pedestrian crossings in good working condition for day and night time conditions?		X	
Is non-slip material used for the pavement markings and/or crossing treatments such as pavers, etc.?		N/A	

LIGHTING	YES	NO	COMMENTS
Is the pedestrian crossing adequately lit?		SOME	
Is the sidewalk adequately lit?		"	
Are they any dark locations that pose a personal security issue?		X	

VISIBILITY/SIGHT DISTIANCE	YES	NO	COMMENTS
Is driver's sight distance to the pedestrian crossings adequate?		NOT SOME LOCATIONS	
Are pedestrians (including small pedestrians) waiting to cross the road visible to motorists?	X		
Can pedestrians (including small children) see approaching vehicles?	X		
Are there temporary or permanent obstructions near the crossing facilities?	X		
Are the sight lines between pedestrians and drivers at conflict points adequate?	X		

PEDESTRIAN AMENITIES	YES	NO	COMMENTS
Is the pedestrian environment pleasant?	X		
Are there seats and/or rest spots for pedestrians?		X	
Are there drinking taps for pedestrians?		X	
Does the pedestrian environment provide shelter and shade?		SOME	
Is the pedestrian environment integrated with adjacent land uses?		X	

Pershing Boulevard Complete Streets Plan

Pedestrian Safety Audit Checklist

PERSONAL SECURITY	YES	NO	COMMENTS
Are there run down/vacant buildings?		RUN DOWN NO, VACANT YES	
Are there any loiterers or suspicious activity in the area?		X	
Is there any graffiti or trash along the corridor?		X	
Are there any unleashed dogs or aggressive dogs along the corridor?		X	

BICYCLE FACILITIES	YES	NO	COMMENTS
Are conflict areas treated with enhanced markings to draw driver and cyclists' attention?		X	
What is the width of the bike lane or shoulder?		NONE	
What is the pavement condition within the shoulder/outside travel lane?		N/A	
How are cyclists detected at signalized intersections?		N/A	
Are detection zones marked/stenciled?		N/A	
If present, are detection zone markings visually obvious to bicyclists/motorists; and, positioned to encourage proper bicyclist position at intersections?		N/A	
What travel speed are the traffic signals currently coordinated for?		40	
Are off-street shared-use pathways designed consistent with current best practices (or CDOT standards?		N/A	
Do pathway/street intersections provide adequate sight/stopping distance for bicyclists and motorists?		X	
Do pathway/street intersection signs and traffic control devices provide travelers with appropriate warning messages and controls?			
Are pathways of sufficient width to minimize multiple-use conflicts and provide for safe bicycle travel?		Y	

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Marked Crosswalk	☐	☒	☐	☐
High Visibility Signs and Markings	☐	☒	☐	☐
Advanced Yield Lines	☐	☒	☐	☐
In-Street Pedestrian Crossing Signs	☐	☐	☐	☐
Curb Extension/ Bulb Outs	☐	☐	☒	☐
Reduced Curb Radii	☐	☐	☒	☐
Raised Crosswalks	☐	☐	☒	☐
Median Pedestrian Island	☐	☒	☐	☐
Staggered Median Pedestrian Island	☐	☒	☐	☐
In-Roadway Warning Lights	☐	☐	☒	☐
Overhead Flashing Beacons	☐	☐	☒	☐
Rapid Flash Beacons	☐	☒	☐	☐
Pedestrian Hybrid Beacon	☐	☒	☐	☐
Pedestrian Countdown Signs	☐	☒	☐	☐
Pedestrian Overpass/ Underpass	☐	☐	☒	☐
Sidewalk Bikes Permitted	☐	☐	☒	☐
Buffered or Protected Bike Lane	☐	☐	☒	☐
Bicycle Lane	☐	☐	☒	☐
Marked Shared Lane (Sharrow)	☐	☒	☐	☐
Paved Shoulder	☐	☐	☒	☐
Bike/Bus Lane	☐	☐	☒	☐
Bicycle Detection	☐	☐	☒	☐
Leading Pedestrian Intervals	☐	☐	☒	☐
Protected Left Turn Phasing	☐	☐	☒	☐
No Turn on Red (signs)	☐	☐	☒	☐

Pershing Boulevard Complete Streets Plan

Toolbox Survey

Which bicycle & pedestrian safety tools are appropriate for Pershing Blvd.?

	Appropriate MOST Places	Appropriate SOME Places	NOT Appropriate	Not Sure
Way-finding Signs	☐	☒	☐	☐
Signal Coordination (bicycle progression)	☐	☐	☒	☐
Lagging Left Turns	☐	☐	☒	☐
Retiming Clearance Intervals	☐	☐	☐	☐
Pedestrian Safety Blitzes	☐	☒	☐	☐
Road Diet (aka Lane Reduction)	☐	☐	☒	☐
Lane Diets	☐	☐	☒	☐
Sidewalks	☒	☐	☐	☐
Corridor Lighting	☐	☒	☐	☐
Landscape Buffer	☐	☐	☒	☐
Crosswalks (at bus stops)	☒	☐	☐	☐
Shelters	☐	☒	☐	☐
Benches	☐	☒	☐	☐

ADDITIONAL OBSERVATIONS

Review of UDC Crosswalk Guidelines

FEHR PEERS

MEMORANDUM

Date: September 11, 2015

To: Sreyoshi Chakraborty, AICP, Cheyenne MPO

From: Ann Bowers, PE, PTOE, Fehr & Peers

Subject: Pershing Complete Streets Project - Review of Cheyenne UDC Crosswalk Guidelines

DN14-0443

Sreyoshi,

As part of the Pershing Complete Streets project, Fehr & Peers reviewed the City of Cheyenne's guidelines on marked crosswalks at uncontrolled intersections. Specifically, section 8.7.2 - Crosswalk Locations and Warrants - of the *City of Cheyenne Road, Street & Site Planning Design Standards.*

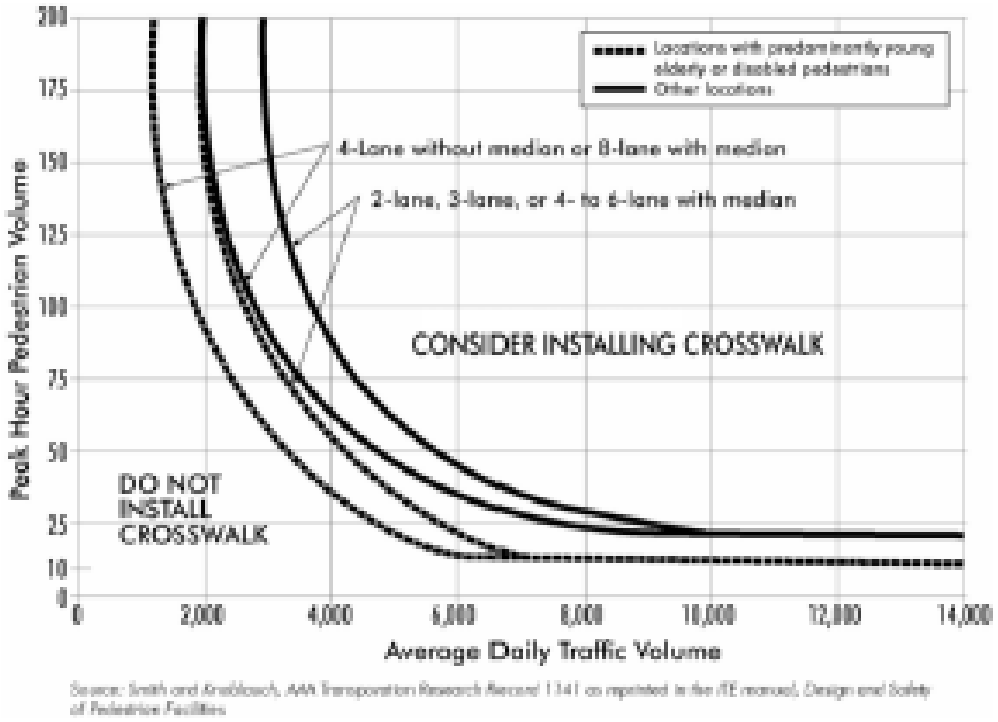
Per this section of the design standards,

> *"The location and frequency of crosswalks along primary arterials, secondary arterials, and collector streets need to be balanced between need, traffic flow, and cost. Whereas an optimum pedestrian environment would have crosswalks at all major activity areas and spaced at 400-foot increments, too great a frequency of crosswalks can create a situation where the typical driver becomes immune to the crosswalk, which might create a safety hazard. The following should be considered when considering locations for crosswalks:*
>
> - *All signalized intersections,*
> - *Locations that will attract high pedestrian volumes,*
> - *Locations for safety, such as crosswalks to school sites, transit stops or activity areas, and*
> - *Mid-block crossings at a minimum of 350 feet from adjacent intersection crosswalks.*

In areas that have high volumes of pedestrians crossing a street, pedestrian crosswalks should be installed. The need for these crosswalks is a function of roadway type and pedestrian volumes. Roadway types from collector to primary arterial result in more travel lanes in which the pedestrian is exposed as he/she crosses, higher traffic volumes, and often increased traffic speeds. The following is a guideline as to where unprotected intersection and mid-block crosswalks should be considered based on street width/type and pedestrian volumes."

The following figure is included in this section as a guideline for installing marked crosswalks. This figure is from the ITE publication *Design and Safety of Pedestrian Facilities*, March 1998.

Figure 8-8. Guidelines for the Installation of Marked Crosswalks at Uncontrolled Intersections and Mid-block Crossings



Source: Smith and Knoblauch, AAA Transportation Research Record 1141 as reprinted in the ITE manual, Design and Safety of Pedestrian Facilities

Based on the chart above, the minimum peak hour pedestrian volume for locations with predominately young, elderly or disabled pedestrians is 10 pedestrians/hour. For a 4-lane roadway with approximately 7,000 vehicles per day, a crosswalk could be considered for installation if the peak hour pedestrian volume equals or exceeds 10 per peak hour.

More recent research has been conducted since the above chart. The following outlines some of that data and provides the City of Cheyenne and the Cheyenne MPO materials to review for possible updates to the current guidelines.

Peer City Research –
In an effort to help the City and County of Denver establish guidelines for pedestrian crossings; Fehr & Peers recently completed peer jurisdiction interviews with the cities of Lakewood, Wheat Ridge, Boulder, Fort Collins, and Salt Lake City, Utah. Additionally, Fehr & Peers already had institutional knowledge of practices at CDOT and the City of Sacramento, California.

Uncontrolled Crossing Treatment Toolbox Research –
In addition, Fehr & Peers researched state- of-the-practice traffic control devices for uncontrolled crossings, including research on safety and yield compliance. Additionally, during our peer jurisdiction interviews we asked staff about what traffic control devices they are currently using and their experiences with those devices.

To assist Cheyenne staff to get up-to-speed on the peer city research, uncontrolled crossing treatment research, and regulation research, we are providing the following with this memo:

- **Attachment A** includes a matrix of decision making criteria summarized for each peer jurisdiction along with appropriate recommendations from Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations (Zegeer et al., 2005).

- **Attachment B** includes a matrix of traffic control devices summarized for each peer jurisdiction as well as the best available safety and efficacy research.

- **Attachment C** includes a brief summary of relevant regulation, design standards, and design guidance.

After review, please let me know if you would like additional information or if we can help you with pedestrian crossing guidelines.

ATTACHMENT A – DECISION MAKING CRITERIA SUMMARY

Decision Making Criteria Summary

As a part of the development of the pedestrian crossing guidelines for the City and County of Denver, Fehr & Peers met with and reviewed the guidelines of 7 different jurisdictions —5 within Colorado (4 of which are in the Front Range) 1 in California, and 1 in Utah. These peer communities discussed any adopted policies they have as well as the process for determining whether to install a midblock crossing and how to determine the most appropriate device. In each interview, we asked peer communities about minimum pedestrian demand requirements, conversion factors for the elderly and children, the role of key destinations, minimum distance from existing crossing requirements, the role of collisions, other factors, and exceptions to these requirements. A summary of the responses and policies of each of the 7 communities (and CDOT) is outlined in the table below.

Process	Peer Jurisdictions							***Safety Effects Study*[1]**
	Boulder	**Lakewood**	**Wheat Ridge**	**CDOT**	**Salt Lake City, UT**	**Sacramento, CA**	**Fort Collins**	
Adopted Policy	Adopted municipal policy: "Pedestrian Crossing Treatment Installation Guidelines" (November 2011)	No adopted policy	No adopted policy	Adopted policy mostly addresses devices and not the decision making process- "CDOT Roadway Design Guide Chapter 14 Bicycle and Pedestrian Facilities" (November 2011)	Does not have municipal adopted policy, but references UDOT policy "State of Utah Warrants"	Adopted municipal policy: "City of Sacramento Pedestrian Crossing Guidelines" (October 2014)	Adopted policy as a part of "Pedestrian Plan Fort Collins" (February 2011)	
Minimum Demand Requirement	-20 peds/hour in any 1 hour -18 peds/hour in any 2 hours -15 peds/ hour in any 3 hours	No quantitative threshold, but do ped counts at peak period	Would like to, but don't have the resources for data collection		UDOT warrant requires: 10 peds/hour or more	20 peds/hour	20 peds/hour or 60 in 4 hours and ≥ 1500 vehicles/day (vpd)	20 peds/hour
Differentiating by person-type (child or elderly)	-Young, elderly and disabled peds count 2x volume threshold -10 school aged peds traveling to/from school in any one hour	No quantitative conversion factors but qualitatively considered, especially for children and elderly	No special exceptions; will accommodate certain people for things such as timing		Nothing stated in the UDOT warrant	-Reduction from 20 to 15 peds/hour if elderly and/or children -Or 1 elderly person/child= 1.33 peds	15 elderly and/or children peds/hour	-Reduction from 20 to 15 peds/hour if elderly and/or child
Key destinations	Will not install unless demand (volume threshold) is already reached	Considered qualitatively, especially schools	Key destinations and drivers of demand are given informal consideration	Nothing stated	Nothing stated in the UDOT warrant	Nothing stated	Adjacent to an existing or proposed park, school, hospital, or other major ped generator/attractor	Key destinations such as school, park, senior center, or hospital can qualify as an exception

[1] Zegeer, C., Stewart, J., Huang, H., & Lagerway, P. (2005). Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Analysis of Pedestrian Crashes in 30 Cities. Transportation Research Record: Journal of the Transportation Research Board, 56-68.

Process	Peer Jurisdictions							*Safety Effects Study*[1]
	Boulder	**Lakewood**	**Wheat Ridge**	**CDOT**	**Salt Lake City, UT**	**Sacramento, CA**	**Fort Collins**	
Distance to nearest crossing	At least 300 ft from the nearest crossing (engineering judgment applies and exceptions noted below)	No formal distance, but takes into consideration	No formal distance, but takes into consideration		Additional points are attributed to locations further from existing crossings	-300 feet (guidance not minimum) -Exception for land uses, trail crossings, site context	Nearest appropriately marked or protected crosswalk is at least 300 feet away (600 feet outside of Ped Districts)	Recommended for consideration in addition to ADT, speed, lanes
Number of collisions	Not specifically noted in the guidelines, but can be the impetus to evaluate a crossing	Review all collision reports to see if contains anything correctable	Crash data is pulled; but crashes don't tell the whole story due to near misses		Nothing stated in the UDOT warrant		Ped accident history indicates a need for a crossing	
Other factors	-Sight distance -Queue from upstream traffic signal -Collect more data, if one day is under threshold but close	-Most requests start with a complaint -Gap studies -Proposed crossings that were not considered for crossing by a close margin are revisited periodically -Speed is an important consideration	-Sight distance, parking, visibility, speed limits, obstructions -Budget is the primary barrier- have a prioritized list of crossing locations; implement about 2 a year going down the list	-Speed -Number of lanes -Vehicles/day -Presence of a median	-Approach speed -Visibility -Lighting -Gap time	-Sight distance (see table from AASHTO Green Book Chapter 3.2.2 based on design speed)	-Ped LOS (speed limit, ADT, street width)	-Vehicle ADT -Number of lanes -Speed -Gaps in traffic -Sight distance -Vehicle mix
Exceptions	Distance threshold exempted when a trail or double the ped threshold				-Usually follow UDOT, but often get special requests (sometimes political, other times don't fit the mold too easily). -Consider UDOT's system a good one and a form of guidance, but the City isn't bound to it.	-Minimum demand and crossing distance exception for trails -Engineering judgment	-Citizen surveys, requests, walking audits can also justify a crossing	-School crossings

ATTACHMENT B – TRAFFIC CONTROL DEVICE SUMMARY

Traffic Control Device Summary

As a part of the development of the pedestrian crossing guidelines for the City and County of Denver, Fehr & Peers met with and reviewed the guidelines of 7 different jurisdictions—5 within Colorado (4 of which are in the Front Range) 1 in California and 1 in Utah. These peer communities discussed traffic control devices that they currently use in their community. In each interview, we asked peer communities if they use the eight devices outlined below, when each device is implemented, and which devices are working well and not working well. A summary of the responses and guidelines of each of the 7 communities (and CDOT) is outlined in the table below.

Device	Peer Jurisdictions							*Efficacy*
	Boulder	**Lakewood**	**Wheat Ridge**	**CDOT**	**Salt Lake City, UT**	**Sacramento, CA**	**Fort Collins**	
High visibility markings	Yes, continental bar crossing, only for maintenance reasons; ideally would use ladder (standard + continental)	Yes, continental bar crossing, primarily for maintenance reasons	-Yes, continental bar crossing, provides a good visual -Starting to do ladder (standard + continental) for the visually impaired	Does not specify marking pattern	Yes, standard crosswalks not in school zones and continental crosswalks (primarily in school zones)	Yes, triple four marking with W11-2 and advanced warning paint	Yes, continental bar crossing and signs	-Statistically significant (37% increase in safety) reduction in collisions occurred at school intersections that had high-visibility (yellow continental) crosswalks installed compared to standard markings.[1] -Presence of a high-visibility crosswalk reduced pedestrian-vehicle collisions 40% compared to before the crosswalk was installed.[2] -Motorist yielding ranged from 10 to 24%, for an average of 17% for 35 mph speed limit; compliance was 61% for 25 mph street.[3]
In-street pedestrian crossing signs	Yes, placed in a median if median is present (preferred)	-No, all signs are side-mounted -Tried previously, but found they didn't work well and had to remove them for winter maintenance anyway	No, don't use for maintenance reasons	No	No, the City does not use but UDOT does	Yes, on local streets with low volumes and low speeds	No, no permanent installations; only temporary at schools which are put out during peak times	-Relatively high motorist yielding (ranged from 82 to 91%, average of 87%); all three study sites were on two-lane streets with posted speed limits of 25 or 30 mph.[4] -The observations of motorists approaching the in-street 'State Law Yield to Pedestrians' sign show that vehicles yielded or stopped for pedestrians 30% before and 93% of the time after the sign was installed. This three-fold increase indicates that the sign was an effective tool to increase compliance rates. Signs

[1] Feldman, M., Manzi, J.G., and M.F. Mitman. Empirical Bayesian Evaluation of Safety Effects of High Visibility School (Yellow) Crosswalks in San Francisco, California. Transportation Research Record: Journal of the Transportation Research Board, No. 2198. Transportation Research Board of the National Academies, Washington, DC, 2010.
[2] Chen, L., C. Chen, R. Ewing, C.. The Relative Effectiveness of Pedestrian Safety Countermeasures at Urban Intersections –Lessons from a New York City Experience. TRB 2012 Annual Meeting.
[3] Nassi, R.B. "Pedestrians." Chapter 13 in *Traffic Control Devices Handbook*, Pub. No. IR-112, ITE, Washington, DC, 2001; NCHRP 562
[4] Nassi, R.B. "Pedestrians." Chapter 13 in *Traffic Control Devices Handbook*, Pub. No. IR-112, ITE, Washington, DC, 2001; NCHRP 562

Device	Peer Jurisdictions							*Efficacy*
	Boulder	**Lakewood**	**Wheat Ridge**	**CDOT**	**Salt Lake City, UT**	**Sacramento, CA**	**Fort Collins**	
								were most effective on streets with speeds 35 mph or less.[5]
Standard flashing beacons	No, don't use anymore; only RRFBs	-No, not on city roads, only CDOT roads -Staff would do RRFBs instead of standard flashing beacons with new installations	No, currently have but aren't implementing any more, would do RRFBs instead	No, nothing mentioned in the guidelines	No, have standard flashing beacons, but are primarily using RRFBs or LED-embedded signs with new installations	Yes, used for some warning application but not in crossing guidelines	No, currently have a couple, but aren't implementing any more, would do RRFBs instead	-The effectiveness of the flashing beacons may be limited on high-speed or high-volume arterial streets. For example, overhead flashing beacons have produced driver yielding behavior that ranges from 30 to 76%, with the median values falling in the mid-50% range.[6] -The evaluations did not contain enough information to attribute high or low driver yielding values to specific road characteristics. The field studies found a similarly wide range of motorist yielding values (25 to 73%), with the average value for all flashing beacons at 58%.[7] -Evaluations performed in several Florida cities show the compliance rates for the standard beacons in the range of only 15 to 20% compared to over 80% for RRFBs. This study recommends the use of standard beacons only as supplemental treatments.[8] -Several studies have shown that intermittent (typically activated using a manual pushbutton or automated sensor) flashing beacons provide a more effective response from motorists than continuously flashing beacons.[9]
Rectangular Rapid Flashing Beacon	-Yes, have been installing successfully -Will continue to install (new one later this year) -Successful regardless	-Yes, staff are using the City of Boulder's guidance -Have approximately five in the City -Feel like they are	-Yes, have in about five to six locations and seem to be working well -Side mounted only, because overhead is	-Yes, interim approval by FHWA -Appears to be the most effective treatment that doesn't require motorists to	-Yes, so far RRFBs seem to be working well; have better visibility than regular flashing beacons or LED signs	-Yes, have used with positive feedback -For locations with obstructed visibility for side-mounted RRFB treatment, a median-	-Yes, two current installations -Complaint is that there are sometimes so many peds that cars don't get to go	-DC DOT's experience at the pilot location (Brentwood Rd. NE) was very successful– 80% driver compliance at the 6 month evaluation.[10] -Yielding during the baseline period

[5] Report on 'Yield to Pedestrian" Sign Treatments. Johnson County Council of Governments. January 2009. http://www.mpojc.org/docs/file/transportation/yieldToPed.pdf <Accessed June 2015>
[6] Lalani, N. *Alternative Treatments for At-Grade Pedestrian Crossings.* Informational Report, Pedestrian and Bicycle Council Task Force Committee, ITE, Washington, DC, August 2001.
[7] Nassi, R.B. "Pedestrians." Chapter 13 in *Traffic Control Devices Handbook*, Pub. No. IR-112, ITE, Washington, DC, 2001;NCHRP 562
[8] Huang, H. *An Evaluation of Flashing Crosswalks in Gainesville and Lakeland.* Highway Safety Research Center, University of North Carolina, Chapel Hill, NC, for Florida Department of Transportation, November 2000.
[9] *Evaluation of Alternative Pedestrian Control Devices,* Oregon Department of Transportation (ODOT) Research Section, and FHWA , Final Report SPR 721, March 2012.

Device	Peer Jurisdictions							*Efficacy*
	Boulder	**Lakewood**	**Wheat Ridge**	**CDOT**	**Salt Lake City, UT**	**Sacramento, CA**	**Fort Collins**	
	of signage used (W11 series or Boulder-specific 'State Law Yield to Pedestrian' signs	working well and would use them again when they feel they are justified -Only on two-lane roads; this wasn't a conscious decision they just haven't had a good reason to install one on a four-lane road -Staff suggest that >30 MPH is the upper limit for RRFBs	expensive -Staff suggest upper limit is 35 mph and 15,000 ADT, 4-5 lanes	stop -Use determined by speed, number of lanes, vehicle volume and presence of a median -Not used on roadways with more than 4 through lanes -Requires high visibility crosswalks, specific signage, and median		mounted RRFB treatment (4-RRFB treatment) shall be considered -Alternatively, the RRFBs may be considered for mounting overhead consistent with FHWA's Interpretation Letter regarding RRFB Overhead Mounting		before the introduction of the RRFB ranged between zero and 26%. The introduction of the RRFB was associated with yielding that ranged between 72 and 96% at the 2-year follow-up. This was across 22 sites in FL, IL and DC with varying ADTs, speed, and lanes.[11] -St Petersburg, FL 19 crossings-Highest ADT site had 19,000 vpd and speed limit 35 mph, yield compliance went from 11% to 90%. -St Petersburg, FL trail crossing of busy, 4 lane urban street: motorist yielding increased from 2% before to 35% after without the flasher activated and 54% when the flasher was activated. Overall, the installation of the RRFB increased the safety of trail users at the crossing. However, the device is not fail safe, and communities employing the device, especially at trail crossings, should take note.[12]
Pedestrian Hybrid Beacon (PHB)	-No, have one on CU's campus (not going to implement more but may not remove this one) -In the future, will implement signal instead of PHB if it warrants more than a RRFB	-Yes, have one installation but will likely not implement another -Pedestrians understand the PHB well, but driver understanding is poor -Drivers do not understand the "wig wag" red; either stay stopped during red phase or roll through without stopping -Staff feel like the outreach effort was	-No, do not currently have but would consider -They are looking into it at one location near 41st and Wadsworth	-Yes -Use determined by speed, number of lanes, vehicle volume and presence of a median	-Yes, have currently but poorly understood -Pedestrians understand what to do but drivers seem confused; don't do well with the flashing (wig-wag) red phase -most are not mid-block (have a minor street), but that seems to be where the need is greatest; side-street treatments are confusing for drivers as well	-Yes, have used with positive feedback -Refer to Chapter 4 F of CA MUTCD for guidance on the pedestrian volume warrants, design features, and restrictions associated with the PHB	-Yes, have three with a fourth almost ready to go in -2 of the 3 are at intersections -They work well to stop vehicles but don't do well with the flashing (wig-wag) red phase -Changed sign to clarify -Once one car goes on the flashing red, all cars go on the flashing red; there's no stopping between cars	-DC evaluation showed an average of 97.1% motorist compliance with the PHB signal, which is comparable to a standard signal. Overall, 49% of pedestrians that crossed at the intersection did so without activating the PHB signal.[13] -Before-after evaluation found the following: A 29% reduction in total crashes, which is statistically significant at the 95% confidence level; a 69% reduction in pedestrian crashes, which is statistically significant at the 95 % confidence level; a 15% reduction in severe crashes, which is not statistically

[10] Branyan, George. DC Experience with the HAWK-Hybrid Ped Signal and RRFB. http://nacto.org/docs/usdg/dc_experience_with_the_hawk_hybrid_pedestrian_signal_branyan.pdf
[11] *Evaluation of Pedestrian and Bicycle Engineering Countermeasures: Rectangular Rapid-Flashing Beacons, HAWKs, Sharrows, Crosswalk Markings, and the Development of an Evaluation Methods Report*. Report No. FHWA-HRT-11-039, Federal Highway Administration, Washington, DC, April 2011.
[12] Hunter, William, Srinivasan, Raghavan, Martell, Carol. Evaluation of the Rectangular Rapid Flashing Beacon at a Pinellas Trail Crossing in St. Petersburg, Florida. October 2009. http://nacto.org/wp-content/uploads/2011/02/Evaluation-of-the-Rectangular-Rapid-Flash-Beacon-at-a-Pinellas-Trail-Crossing.pdf <Accessed June 2015>
[13] Branyan, George. DC Experience with the HAWK-Hybrid Ped Signal and RRFB. http://nacto.org/docs/usdg/dc_experience_with_the_hawk_hybrid_pedestrian_signal_branyan.pdf

Device	Peer Jurisdictions							*Efficacy*
	Boulder	**Lakewood**	**Wheat Ridge**	**CDOT**	**Salt Lake City, UT**	**Sacramento, CA**	**Fort Collins**	
		extensive but that it still doesn't work well -Staff appreciate what they've learned through the first PHB installation but would install a signal next time instead			-double threat is an issue -don't have criteria for when to use the PHB		-Will continue to install at locations where it's appropriate -There are some complaints, especially in areas with children	significant at the 95% confidence level.[14]
Traffic Signal	-Yes, even when warrants aren't met -Guidelines state implement when speed limit 45 or greater or 3 or more through lanes in a given direction or 5 lanes without median	-Yes, but because most busy roadways in Lakewood are CDOT highways, most pedestrian signals are likely to be on CDOT highways	Yes, when warrants are met	-Yes, when warrants are met -Should comply with MUTCD	Yes, when warrants are met	Yes, refer to CA MUTCD (1), Part 4E for the provisions related to traffic signal pedestrian control features	Yes, even when warrants aren't met	-Several studies, have documented driver yielding in the 90 to 100% range. The steady red signal indication typically receives a more uniform control response than warning signs or flashing beacons.[15,16]
Grade Separation	-Yes, have 80 underpasses, mostly part of the greenway system	-Yes, the City has some already installed	-No, don't have any -Don't like because pedestrians tend not to use; take the path of least resistance	-Yes, grade separation is sometimes the only practical method (expressways, children near major arteries) -Overpass preferred over underpass -Conduct feasibility study prior -Located where it is needed and will actually be sued -Must be accessible for all users -Must be built with barriers, railings, lighting and width for safe pedestrian use based on location and ped volume	Yes, but limited due to cost	Yes, would consider in the correct circumstances	Yes, have and are considering additional locations	-Generally, pedestrian/bicycle overcrossings work best when they overcome major barriers hindering direct travel between origins (e.g., residential neighborhoods) and destinations (e.g., schools, commercial areas, and transit stops).[17] - For bridges and underpasses that are used by a large proportion of pedestrians and bicyclists, studies have found that pedestrian-related crashes decreased by 91%.[18] -However, other studies have determined that if the walking time to use an overpass is 50% longer than crossing the street at-grade, then the bridge or underpass will not be used and will be ineffective in reducing crashes.[19]
Flag Program	No	No	No	No	-Yes, 250 locations; the city manages	No	No	-With crossing flags, motorist yielding rates ranged from 46 to

[14] Safety Effectiveness of the HAWK Pedestrian Crossing Treatment. FHWA. July 2010. http://www.fhwa.dot.gov/publications/research/safety/10042/10042.pdf
[15] *Making Crosswalks Safer for Pedestrians: Application of a Multidisciplinary Approach to Improve Pedestrian Safety at Crosswalks in St. Petersburg, Florida*. Center for Urban Transportation Research (CUTR), University of South Florida, Tampa, FL, July 2000.;
[16] Nassi, R.B. "Pedestrians." Chapter 13 in *Traffic Control Devices Handbook*, Pub. No. IR-112, ITE, Washington, DC, 2001; NCHRP 562 Appendix L
[17] *Guide for the Planning, Design, and Operation of Pedestrian Facilities*. American Association of State Highway and Transportation Officials, Washington DC, July 2004.
[18] http://guide.saferoutesinfo.org/engineering/pedestrian_and_bicycle_bridges_and_tunnels.cfm
[19] http://guide.saferoutesinfo.org/engineering/pedestrian_and_bicycle_bridges_and_tunnels.cfm

Device	Peer Jurisdictions							*Efficacy*
	Boulder	**Lakewood**	**Wheat Ridge**	**CDOT**	**Salt Lake City, UT**	**Sacramento, CA**	**Fort Collins**	
					downtown locations but other locations are sponsored -Has to be an existing marked crosswalk to get flags -City subsidizes the flags (charge $.50 but cost $3) but sponsor must pick them up -Concern about false sense of security -Have two kinds of flags: red and reflective (better for night) -Administration is minimal but cost and maintenance is high			79%, with an average of 65% compliance.[20] -Two flag studies in Salt Lake City showed that approximately 11-14% of pedestrians use the flags when crossing. A University of Utah study found that 81% of vehicles yielded to pedestrians with a flag, compared to 20% compliance when a flag was not used.[21] -30% of pedestrians used the flags in crossing, and the observed compliance rate was 92.5% for pedestrians with flags; for pedestrians without flags, 73% of drivers did not yield to the pedestrians in the crosswalk.[22] -Madison, WI: At one location, 53% of pedestrians used a flag. Motorist yielded 79.5% of the time when a pedestrian was using a flag and 65.6% of the time when a pedestrian was not using a flag.[23]

[20] Nassi, R.B. "Pedestrians." Chapter 13 in *Traffic Control Devices Handbook*, Pub. No. IR-112, ITE, Washington, DC, 2001; NCHRP 562
[21] "Crosswalks: to use the flag or not to use the flag?" University of Utah. May 2006.
[22] George Branyan, Washington, DC pedestrian program coordinator, personal communication, January 17, 2006.
[23] Ann D. Clark, Madison, WI personal communication, Thursday October 17, 2002.

ATTACHMENT C – REGULATION, DESIGN STANDARDS, AND DESIGN GUIDANCE SUMMARY

Regulation, Design Standards, and Design Guidance Summary

Regulation

Both Colorado Revised Statutes and Denver Revised Municipal Code apply in CCD.

Colorado Revised Statutes (http://www.lexisnexis.com/hottopics/Colorado/) Title 42, Article 4, Part 8 contains various sections applying to pedestrians.

Denver Revised Municipal Code (https://library.municode.com/index.aspx?clientId=10257&stateId=6&stateName=Colorado):

- Chapter 54 Traffic Regulations, Article V Traffic Control Devices, Section 54-98 requires that all traffic control devices conform as nearly as the city traffic engineer shall deem practical to the requirements and recommendations contained in the Colorado Uniform Traffic Control Devices Manual and the Manual on Uniform Traffic Control Devices prepared by the National Joint Committee on Uniform Traffic Control Devices.
- Chapter 54 Traffic Regulations, Article VII Stopping, Standing and Parking, Division 3, Prohibited in Specified Places, Section 54-458 prohibits stopping or allowing a vehicle to stand on a crosswalk or within 20 feet of a crosswalk.
- Chapter 54 Traffic Regulations, Article VIII Pedestrians contains various sections applying to pedestrians.
- Chapter 54 Traffic Regulations, Article IX Bicycles and Electric Personal Assistive Mobility Devices contains various sections applying to bicyclists.

Design Standards/Guidance

Manual on Uniform Traffic Control Devices (MUTCD, FHWA, 2009) and the Colorado Supplement to the MUTCD – Conformity (with exceptions) is required by Denver Revised Municipal Code.

NACTO Urban Streets Design Guide – Endorsed by CCD (2013).

Traffic Signal Standards and Sign & Markings Standards (2011) – Specifies reflectorized thermo-plastic, 18"x10' at signal-controlled approaches and 24"x10' at stop sign-controlled approaches and uncontrolled approaches (Standard Drawing Number 16.2.2, 16.2.3, and 16.2.4).

Transportation Standards and Details (2013) does not address crosswalks.

Other Plans and Policies

Denver Downtown Area Plan – City County designated downtown as a pedestrian priority zone (2007).

Cherry Creek Area Plan – City Council designated Cherry Creek as a pedestrian priority zone (2012).

APPENDIX D: COST ESTIMATES

Pershing Boulevard Complete Streets

Estimate of Probable Costs

Plan Date: July 2015

Prepared by: Russell + Mills Studios

ITEM	UNIT	UNIT COST	QTY.	EXTENDED COST
Phase 1 - Pedestrian Safety (Duff Street Pedestrian Crossing - RRFB w/median)				
DEMOLITION				
Remove existing Asphalt for Median Treatment	S.F.	$3.00	555	$1,665.00
Remove existing Curb & Gutter	L.F.	$15.00	135	$2,025.00
Saw Cutting Pavement for Removal	L.F.	$8.00	240	$1,920.00
	CATEGORY SUBTOTAL			**$5,610.00**
SITE WORK				
Grading Allowance	ALLOW	$4,000.00	1	$4,000.00
Curb & Gutter	L.F.	$20.00	135	$2,700.00
Ped. refuge curb and gutter	L.F.	$20.00	72	$1,440.00
ADA Curb Ramp	L.S.	$2,500.00	2	$5,000.00
Asphalt Patching	S.F.	$15.00	353	$5,295.00
Ped. refuge Concrete	S.F.	$15.00	200	$3,000.00
Striping	ALLOW	$4,000.00	1	$4,000.00
	CATEGORY SUBTOTAL			**$25,435.00**
TRAFFIC SIGNALS				
RRFB Signals	L.S.	$35,000.00	1	$35,000.00
Footings	E.A.	$2,000.00	3	$6,000.00
	CATEGORY SUBTOTAL			**$41,000.00**
			SUBTOTAL	**$72,045.00**
		15% Design Contingency		**$10,806.75**
20% Contractor Mobilization/General Conditions/Profit				**$14,409.00**
10% City Administrator and Management Fees				**$7,204.50**
		8% Design Fees		**$5,763.60**
		GRAND TOTAL		**$110,228.85**

Pershing Boulevard Complete Streets

Estimate of Probable Costs

Plan Date: July 2015

Prepared by: Russell + Mills Studios

ITEM	UNIT	UNIT COST	QTY.	EXTENDED COST	NOTES
Phase 2 - Commercial Core (Airport Parkway - Dunn Ave.)					
DEMOLITION					
Remove existing Concrete and Asphalt	S.F.	$3.00	14,276	$42,828.00	
Remove existing Asphalt for Median Treatment	S.F.	$3.00	5,700	$17,100.00	
Remove existing Curb & Gutter	L.F.	$15.00	785	$11,775.00	
Saw Cutting Pavement for Removal	L.F.	$8.00	2,500	$20,000.00	
Remove existing Street Trees	EA	$700.00	8	$5,600.00	
Remove existing Traffic Signal	EA	$2,000.00	4	$8,000.00	
Remove existing Street Lights	EA	$1,000.00	8	$8,000.00	
	CATEGORY SUBTOTAL			**$113,303.00**	
LIGHTING					
New Traffic Signal	EA	$25,000.00	4	$100,000.00	
Pedestrian Lights w/ Banners	EA	$5,000.00	36	$180,000.00	
	CATEGORY SUBTOTAL			**$280,000.00**	
SITE WORK					
Grading Allowance	ALLOW	$4,000.00	1	$4,000.00	
Median Monument	EA	$2,500.00	1	$2,500.00	
Seatwall	L.F.	$375.00	850	$318,750.00	
Curb & Gutter	L.F.	$20.00	1,465	$29,300.00	
Concrete Header - Planting Beds	L.F.	$15.00	470	$7,050.00	
Median curb and gutter	L.F.	$20.00	1,867	$37,340.00	
ADA Curb Ramp	EA	$2,500.00	24	$60,000.00	
Asphalt Patching	S.F.	$15.00	10,000	$150,000.00	
Colored Concrete - bulb-outs/crosswalks	S.F.	$17.00	17,392	$295,664.00	
Concrete Sidewalk - Extension	S.F.	$15.00	6,537	$98,055.00	
Striping	ALLOW	$4,000.00	1	$4,000.00	
	CATEGORY SUBTOTAL			**$1,006,659.00**	
LANDSCAPE					
Soil Prep - Compost and fertilizer as required	C.Y.	$25.00	83	$2,075.00	All planted areas - 6" depth
Mulch	C.Y.	$35.00	42	$1,470.00	Shredded Cedar - 3" depth
Deciduous Tree	EA.	$350.00	100	$35,000.00	2" caliper
Shrubs/Grasses/Perennial	S.F.	$6.00	4,472	$26,832.00	
	CATEGORY SUBTOTAL			**$65,377.00**	
SITE FURNISHINGS					
Planter Pots - Large	EA.	$1,500.00	19	$28,500.00	
Tree Grates	EA.	$1,500.00	30	$45,000.00	
Café Seating	EA.	$4,800.00	28	$134,400.00	
Bench	EA.	$2,000.00	13	$26,000.00	
Trash Receptacles	EA.	$800.00	13	$10,400.00	
	CATEGORY SUBTOTAL			**$244,300.00**	
IRRIGATION					
Irrigation	ALLOW	$5,000.00	1	$5,000.00	Irrigation adjustments/improvements
	CATEGORY SUBTOTAL			**$5,000.00**	
			SUBTOTAL	**$1,714,639.00**	
		15% Design Contingency		**$257,195.85**	
20% Contractor Mobilization/General Conditions/Profit				**$342,927.80**	
10% City Administrator and Management Fees				**$171,463.90**	
		8% Design Fees		**$137,171.12**	
		GRAND TOTAL		**$2,623,397.67**	

Pershing Boulevard Complete Streets

Estimate of Probable Costs

Plan Date: July 2015

Prepared by: Russell + Mills Studios

ITEM	UNIT	UNIT COST	QTY.	EXTENDED COST	NOTES
Phase 3 - Commercial Core (Dunn Ave. - Logan Ave.)					
DEMOLITION					
Remove existing Concrete and Asphalt	S.F.	$3.00	9,503	$28,509.00	
Remove existing Asphalt for Median Treatment	S.F.	$3.00	11,750	$35,250.00	
Remove existing Curb & Gutter	L.F.	$15.00	110	$1,650.00	
Saw Cutting Pavement for Removal	L.F.	$8.00	3,000	$24,000.00	
Remove existing Street Trees	EA	$700.00	10	$7,000.00	
Remove existing Traffic Signal	EA	$2,000.00	4	$8,000.00	
Remove existing Street Lights	EA	$1,000.00	3	$3,000.00	
	CATEGORY SUBTOTAL			**$107,409.00**	
LIGHTING					
New Traffic Signal	EA	$25,000.00	4	$100,000.00	
Pedestrian Lights w/ Banners	EA	$5,000.00	41	$205,000.00	
	CATEGORY SUBTOTAL			**$305,000.00**	
SITE WORK					
Grading Allowance	ALLOW	$4,000.00	1	$4,000.00	
Median Monument	EA	$2,500.00	1	$2,500.00	
Curb & Gutter	L.F.	$20.00	150	$3,000.00	
Color Concrete Plaza	S.F.	$17.00	906	$15,402.00	
Median curb and gutter	L.F.	$20.00	3,046	$60,920.00	
ADA Curb Ramp	EA	$2,500.00	14	$35,000.00	
Asphalt Patching	S.F.	$15.00	1,700	$25,500.00	
Colored Concrete - bulb-outs/crosswalks	S.F.	$17.00	5,198	$88,366.00	
Concrete Sidewalk - Extension	S.F.	$15.00	6,642	$99,630.00	
Striping	ALLOW	$4,000.00	1	$4,000.00	
	CATEGORY SUBTOTAL			**$338,318.00**	
LANDSCAPE					
Soil Prep - Compost and fertilizer as required	C.Y.	$25.00	311	$7,775.00	All planted areas - 6" depth
Mulch	C.Y.	$35.00	47	$1,645.00	Shredded Cedar - 3” depth
Deciduous Tree	EA.	$350.00	70	$24,500.00	2” caliper
Turf Grass - tree lawn	S.F.	$0.60	11,710	$7,026.00	
Shrubs/Grasses/Perennial	S.F.	$6.00	5,092	$30,552.00	
	CATEGORY SUBTOTAL			**$71,498.00**	
SITE FURNISHINGS					
Planter Pots - Large	EA.	$1,500.00	4	$6,000.00	
Tree Grates	EA.	$1,500.00	22	$33,000.00	
Café Seating	EA.	$4,800.00	6	$28,800.00	
Bench	EA.	$2,000.00	2	$4,000.00	
Trash Receptacles	EA.	$800.00	4	$3,200.00	
	CATEGORY SUBTOTAL			**$75,000.00**	
IRRIGATION					
Irrigation	ALLOW	$5,000.00	1	$5,000.00	Irrigation adjustments/improvements
	CATEGORY SUBTOTAL			**$5,000.00**	
			SUBTOTAL	**$902,225.00**	
		15% Design Contingency		**$135,333.75**	
20% Contractor Mobilization/General Conditions/Profit				**$180,445.00**	
10% City Administrator and Management Fees				**$90,222.50**	
		8% Design Fees		**$72,178.00**	
		GRAND TOTAL		**$1,380,404.25**	

Pershing Boulevard Complete Streets

Estimate of Probable Costs

Plan Date: July 2015

Prepared by: Russell + Mills Studios

ITEM	UNIT	UNIT COST	QTY.	EXTENDED COST	NOTES
Phase 4 - Multi-Use Path/Planted Medians (Evans Ave. - Airport Parkway)					
DEMOLITION					
Remove existing Asphalt for Median Treatment	S.F.	$3.00	17,011	$51,033.00	
Saw Cutting Pavement for Removal	L.F.	$8.00	3,205	$25,640.00	
Remove existing Traffic Signal	EA	$2,000.00	4	$8,000.00	
	CATEGORY SUBTOTAL			**$84,673.00**	
LIGHTING					
New Traffic Signal	EA	$25,000.00	4	$100,000.00	
	CATEGORY SUBTOTAL			**$100,000.00**	
SITE WORK					
Grading Allowance	ALLOW	$4,000.00	1	$4,000.00	
Median curb and gutter	L.F.	$20.00	4,771	$95,420.00	
Asphalt Patching	S.F.	$15.00	5,791	$86,865.00	
Concrete Sidewalk - Extension	S.F.	$15.00	7,186	$107,790.00	
Striping	ALLOW	$4,000.00	1	$4,000.00	
	CATEGORY SUBTOTAL			**$298,075.00**	
LANDSCAPE					
Soil Prep - Compost and fertilizer as required	C.Y.	$25.00	136	$3,400.00	All planted areas - 6" depth
Mulch	C.Y.	$35.00	68	$2,380.00	Shredded Cedar - 3” depth
Deciduous Tree	EA.	$350.00	18	$6,300.00	2” caliper
Shrubs/Grasses/Perennial	S.F.	$6.00	7,367	$44,202.00	
	CATEGORY SUBTOTAL			**$56,282.00**	
IRRIGATION					
Irrigation	ALLOW	$5,000.00	1	$5,000.00	Irrigation adjustments/improvements
	CATEGORY SUBTOTAL			**$5,000.00**	
			SUBTOTAL	**$544,030.00**	
		15% Design Contingency		**$81,604.50**	
	20% Contractor Mobilization/General Conditions/Profit			**$108,806.00**	
	10% City Administrator and Management Fees			**$54,403.00**	
		8% Design Fees		**$43,522.40**	
		GRAND TOTAL		**$832,365.90**	