East Pershing Boulevard Corridor and Intersections Plan

(Cheyenne, Wyoming)

Prepared for:

Cheyenne Metropolitan Planning Organization

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East Pershing Boulevard Corridor and Intersection Planning Project

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Snapshot

The purpose of this study is to determine ways improve traffic flow, provide a pedestrian friendly environment and revitalize the economic and physical condition of East Pershing Boulevard between Dunn Avenue and Converse Avenue through roadway improvements, landscaping improvements, pedestrian-oriented enhancements and land use recommendations. East Pershing Boulevard is a primary arterial roadway running east/west though the City of Cheyenne. The study is comprised of two components. The first component is the East Pershing Corridor from Dunn Avenue to Converse Avenue. The Pershing Corridor from Dunn Avenue to Converse Avenue consists of a mix of commercial and residential properties. On the west end of the corridor from Dunn Avenue to Concord Road most of the properties are used for commercial purposes. Carey Junior High School, two churches and a few residential homes are located between Concord Road and Salem Avenue. The remainder of the corridor from Salem Avenue to Converse Avenue is primarily residential single-family homes with a few businesses on the south side of Pershing Boulevard between Carbon Avenue and Converse Avenue.

The second component of the study is the 19th/Pershing/Converse intersection. This intersection is actually three closely spaced signalized intersections working together. The Cole Shopping Center is located in the southeast corner of the intersection and a Hollywood Video Store is located in the west corner of the intersection. Both of these have accesses near the intersection. The VA Hospital is located in the northeast corner of the intersection and the remaining two corners in the northwest and southwest quadrants of the intersection are single-family residential.

History of Corridor and Compliance with National Historic Preservation Act

East Pershing Boulevard is not part of any historic districts. However, if federal funds are used in the project or if a federal agency is a part of the planning and implementation, a Section 106 Study is required to determine potential impacts to historic properties. This study needs to be completed prior to construction or implementation. The Wyoming State Historic Preservation Office (SHPO) will need to be contacted to discuss the parameters of the project. In consultation with the SHPO, the area of potential affect will be defined and properties within this area will need to be evaluated. Historic properties will be identified using the Secretary of the Interior's Standards and Guidelines for Identification. The properties identified as historic will then be evaluated for the potential effect of the planned work.

Several findings can be determined, including: no historic properties affected, historic property adversely affected, or historic property not adversely affected. Depending upon the affect determined there are different processes for resolution. In addition to the SHPO, it is common to have other consulting agencies involved in the evaluation. These may include the public, the local Landmark Preservation Commission, or property owners.

Existing Land Use

The East Pershing Boulevard Corridor and Intersection Plan incorporated a thorough public involvement process to understand the opportunities and constraints along the corridor, and to develop trust among city officials and staff, business owners and community residents. See Figure 1 for the Opportunities and Constraints diagram.

Primary purposes of the plan include:

1. Provide street improvements that increase safety and allow for future traffic volumes consistent with principal arterial streets.
2. Create a pedestrian oriented environment that is safe, visually pleasing, accessible and comfortable
3. Control vehicular access and safety along the corridor to provide for residential uses along a primary arterial
4. Successfully accommodate snow removal and storage along the corridor
5. Explore new economic potentials along the corridor.

To begin the project, the team conducted an analysis of the corridor to identify the primary opportunities and constraints of the area. Primary issues addressed in this analysis included:

- Consider raised medians in roadway where a center turn lane is not needed.
- Provide additional access control at the commercial center.
- Address parking and access issues that currently exist in the residential areas along the corridor.
- Improve sight distance at the Salem Avenue intersection.
- The student drop-off for Carey Junior High backs traffic up about a block and a half along the right westbound lane of E. Pershing Boulevard east of the school. During winter the stopped vehicles have trouble restarting without sliding down the hill near Salem Avenue.
- Wider detached sidewalks are needed to create a safer environment for pedestrians
- Many large trees exist within the roadway right-of-way and may require removal to accommodate improvements to East Pershing.
- Snow removal along East Pershing damages resident's front yards.
- Carbon Avenue is subject to flooding (This problem should not exist after the completion of the Henderson Basin Flood Control Project. As part of the Henderson project inlet galleries will be installed to collect storm water from East Pershing Boulevard and Carbon Avenue.)
- A safe bike lane is needed along East Pershing.
- Many existing retaining walls encroach into the roadway right-of-way and may require reconfiguration.
- Roadway improvements may require adjustment and reconfiguration of parking and access for private businesses along East Pershing.

An additional constraint for the E. Pershing Boulevard corridor was for the improvements to remain within the existing 80 foot right-of-way. Many of the residents feel they have small front yards, and are opposed to losing more property than they need too. The City of Cheyenne Engineering Department agreed, and required the improvements remain within the existing right-of-way in order to minimize the impacts to properties in the project area.

OPPORTUNITIES AND CONSTRAINTS

An opportunity exists to provide raised medians with trees and plantings where a center turn lane is not needed.

Additional access control needed at existing Commercial Center.

Roadway edge offset at Rayor Street intersection creates unsafe condition for vehicles traveling east on Pershing.

Parking in front driveways creates unsafe conditions when backing into Pershing.

The steep slope and limited sight distance creates an unsafe condition at Salem intersection.

Many large trees exist within the City ROW, and may require removal to accomodate improvements to Pershing. Efforts will be made to save as many trees as possible.

Wider detached sidewalks along both sides of Pershing would create a safer environment for pedestrians.

Sloping roadway and shallow sight distance makes access from driveways challenging and dangerous.

Snow removal along Pershing damages resident's front yards and creates problems for snow removal on the sidewalks.

Carbon Avenue is a dangerous intersection, and is also subject to flooding.

Roadway improvements may require adjustment and reconfiguration of parking and access for private businesses along Pershing.

Most residents prefer that Pershing improvements do not require moving the roadway closer to their homes unless there was adequate compensation for relocation. Some residents do not want to relocate.

Drop-off at Carey Junior High creates traffic back-up along Pershing.

Existing alleys provide access to rear of lots for parking. There is an opportunity for alleys to be paved as part of an improvement strategy.

Some existing retaining walls encroach into the existing Pershing ROW, and may require reconfiguration to accomodate Pershing improvements.

A dedicated bike lane is needed along Pershing to create a safe condition for bikers.

Many residents have seen or experienced rear end accidents when attempting to enter or exit Pershing from their driveway.

PRIMARY RESIDENT CONCERNS

1. Residents prefer that Pershing improvements do not move traffic closer to homes
2. Need for sidewalks - wider and detached
3. Maintaining parking in front of homes along Pershing is desired
4. Snow removal creates problems for homeowners at walk and front yards
5. Speeds along Pershing are excessive - traffic needs to slow down
6. Flooding in homes is a problem during large storm events
7. Alleys could be improved by paving them

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EAST PERSHING BOULEVARD CORRIDOR AND INTERSECTION PLAN

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Figure 1 Opportunities and Constraints Map

Potential Environmental Impacts Analysis

As part of this study, Terracon investigated the potential environmental impacts caused by the proposed project using guidance from the National Highway Administration. Terracon concluded proposed improvements meet the requirement for a categorical exclusion under the National Environmental Policy Act (NEPA).

A categorical exclusion means a category of actions, which do not cumulatively have a significant effect on the human environment, and therefore neither an environmental assessment nor an environmental impact statement is required. See Appendix A for the Potential Environmental Impact Analysis.

Structure

Proposed Land Use Strategies

An important part of planning for the future of the corridor is planning for potential new land uses that may transition along the corridor over time. Redevelopment of similar sites is not unique to Cheyenne; it represents a trend occurring across the country, as the market continues to change. Nationwide, there are several factors driving this change:

- Reduced percentages of households with children and a growing market for multi-unit housing in the suburbs
- Continued growth in the percentage of jobs in suburban locations
- Regional growth patterns that are giving leapfrogged suburban areas a new centrality
- Rising gas prices making housing on the periphery less affordable
- Lengthening commutes making leapfrogged suburban locations more attractive
- Local smart-growth policies and transit investments that are limiting sprawl and redirecting growth to existing infrastructure
- Rising land values
- The dearth of good, cheap, undeveloped sites in increasingly built-out suburban markets
- Aging Greyfield properties with an abundance of surface parking lots
  "Retrofitting Suburbia", 2009, by Ellen Dunham-Jones and June Williamson

Although technically not part of a suburb, the East Pershing Boulevard corridor is located on the periphery of the historic core of Cheyenne, was developed in the style of post World War II suburbs, and is subject to many of these trends. To explore the possibilities for transitions in land use and reinvestment along the corridor, the design team prepared several alternatives for two key potential redevelopment sites along the corridor. These sites include the existing shopping center site located at the northwest corner of Concord Avenue and East Pershing Boulevard and the Carey Junior High School site, which is located at the northeast corner of Concord Avenue and East Pershing Boulevard.

Shopping Center Site

As an aging commercial center with many vacancies, the shopping center site provides a prime opportunity for redevelopment along the East Pershing Boulevard Corridor. Three alternatives for redevelopment were prepared for the site.

<u>Neighborhood Commercial – Alternative A</u>

A medium sized retail anchor, such as a grocery store or similar use, with supporting retail uses, characterizes the Neighborhood Commercial concept. This alternative illustrates how a medium sized grocery store, supporting retail, and parking could be accommodated on the commercial center site. Supporting retail buildings are located at the street edges, in order to promote a "building forward" environment, where buildings clearly mark entries into the development, screen parking from the roadway, and are readily identifiable from the roadway. See Figure 2.

Big Box Retail – Alternative B

A large retail anchor, such as a home improvement store or department store, with supporting retail uses, characterizes the Big Box Retail concept. As with Alternative A, this alternative provides supporting retail uses right at the street edge, creating a building forward environment along Converse Avenue and East Pershing Boulevard. See Figure 3.

Mixed Use – Alternative C

Alternative C provides a mix of uses on the site, including residential, retail, a small park, and parking. A new entrance and drop-off could be created along the south side of the existing movie theater, providing a new front door for the theater visible from East Pershing. This mixed-use approach provides a distinct urban styled environment for residents. See Figure 4.

Carey Junior High School Site

In the future, the existing Carey Junior High School may close or be relocated. Because of this possibility, two alternatives were prepared for the Carey Junior High School site, which illustrate how the site could be developed with different uses. The concepts also provide for the potential re-alignment of Concord Avenue. This re-alignment positions Concord to intersect with East Pershing at the existing Logan intersection.

Mixed Use – Alternative A

Alternative A is organized by a central public gathering space located at the intersection of Concord and East Pershing. This space may be designed as a versatile space, used in the winter as an ice skating rink, and as a small plaza during the summer months. Surrounding the plaza is a cluster of mixed-use buildings, which may include a blend of retail, office, and residential uses. Depending on the use, structured parking beneath the buildings may be required. A small park and multi-family residential complex are provided in the southeast corner of the site, providing additional multi-family dwellings along the corridor. Buildings are located adjacent to the street, screening the parking behind. See Figure 5.

Elementary School – Alternative B

Alternative B provides for an elementary school to replace the junior high school. The current configuration of the junior high school provides the primary drop-off and entry along East Pershing. This arrangement has been problematic, as there is traffic congestion at the drop-off area, and provides a potentially dangerous condition for students as they access the school along the busy corridor. Instead, this alternative locates the elementary school set back from East Pershing, with frontage and access provided along the re-aligned Concord/Logan street. Mixed-use buildings are provided along East Pershing, with parking provided behind. See Figure 5.

Figure 2 Shopping Center Site Redevelopment – Alternative A

Figure 3 Shopping Center Site Redevelopment – Alternative B

Figure 4 Shopping Center Site Redevelopment – Alternative C

Figure 5 Carey Junior High Redevelopment

Roadway Improvement Strategies

The intent for the roadway improvements is to establish an authentic and consistent street character along the corridor. The street sections illustrate the range of proposed street improvements, and provide design recommendations for enhancements. See Figure 6.

SECTION A

Section A demonstrates the proposed roadway improvements between Rollins Avenue and Rayor Avenue. The street section provides a walk on either side of the roadway, and a raised median with trees and plantings in the center of the roadway. Three material alternatives for the median and decorative pavement edge are provided. The preferred alternative is the exposed aggregate concrete, as it can be constructed at a relatively low cost, has little maintenance requirements, and has a timeless quality that aids in keeping it from looking dated over time. See Figure 7.

SECTION B

These street sections illustrate four sidewalk design alternatives for the area between Salem Road and Albany Avenue. Steep slopes that require retaining walls on the north and south sides of the street characterize this street section. The alternatives seek to balance pedestrian safety with roadway aesthetics and function. The preferred alternatives are B1 and B3, as these alternatives are most suitable for maintaining pedestrian safety and separation, while accommodating snow removal and snow storage needs. See Figure 8.

SECTION C

Section C illustrates the proposed roadway improvements between Albany and Converse Avenues. This area is characterized by tree lawns on the north and south sides of the roadway to create a safe buffer between traffic and pedestrians. The tree lawns will also serve as a location to store snow from the street and sidewalk during winter. Tree lawns may include either salt tolerant grass that will not be adversely affected by roadway treatment materials, or with river cobble. An exposed aggregate decorative edge extends along the entire corridor. The decorative pavement edge will serve as a buffer to prevent road salt and grime splashed on to the tree lawn from killing vegetation. See Figure 9.

ROUNDABOUT

The roundabout is characterized by a mounded landform in the center, a series of low retaining wall segments, and an array of naturalistic plantings. The retaining walls extend from the northeast corner of the East Pershing/Converse intersection into the roundabout interior. These walls create a physical and visual connection between the east and west sides of the roundabout along the East Pershing roadway alignment, and assist drivers in navigating the roundabout. See Figure 10.

The roundabout is characterized by:

- Exposed aggregate concrete crosswalks
- Exposed aggregate concrete roundabout apron
- Stacked stone retaining walls
- Mounded roundabout interior
- Native grass meadow plantings

- Wildflower meadow plantings
- Rabbit Brush accent plantings

Figure 6 Corridor Landscaping Overview

Figure 7 Cross Section Landscaping – Section A

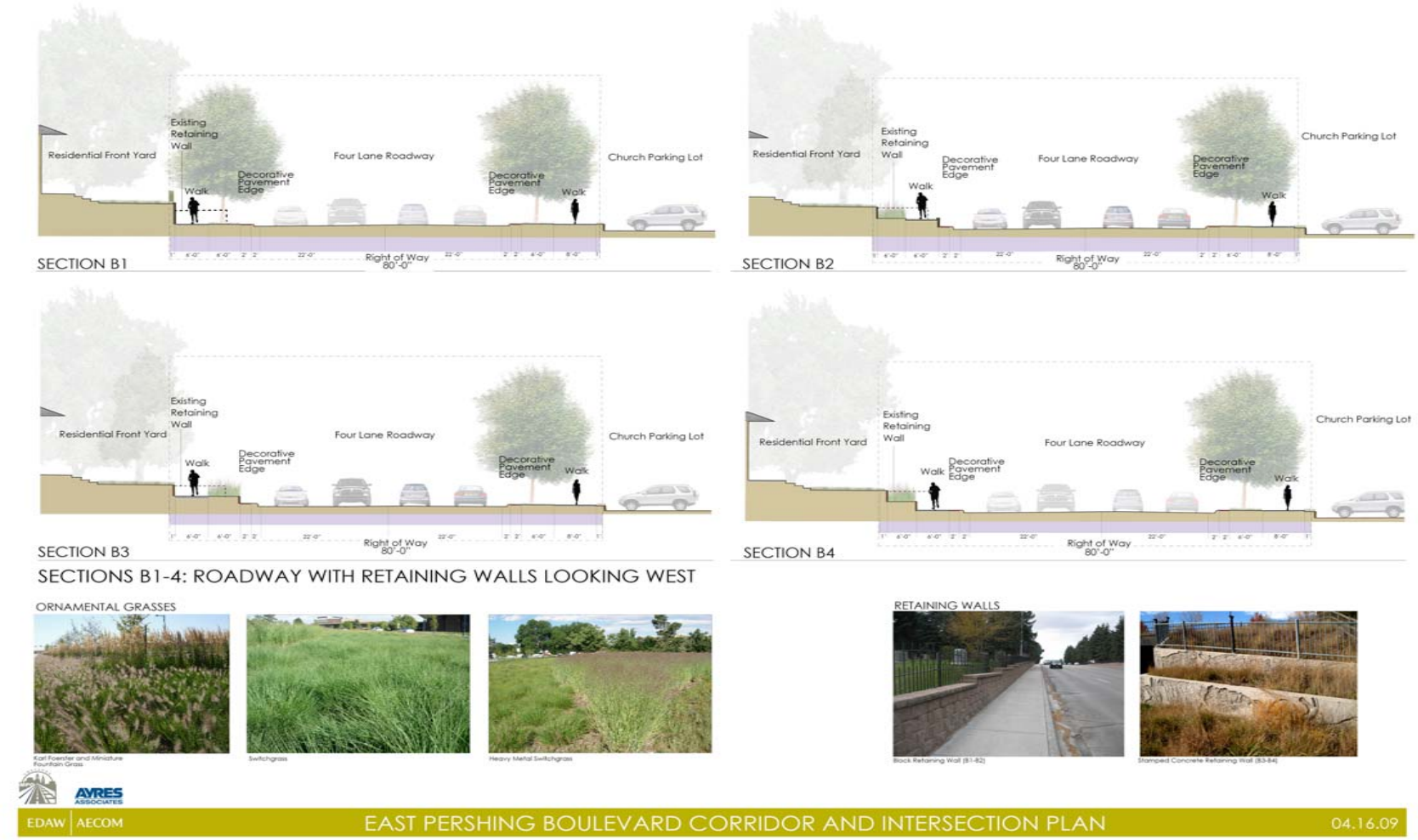


Figure 8 Cross Section Landscaping – Section B

Figure 9 Cross Section Landscaping – Section C

Figure 10 Converse/19th Intersection Landscaping

Public Involvement

Corridor Walk

A corridor walk was held on Saturday May 03, 2008 for residents within the project area. During the corridor walk the project team went door to door and talked with the residents to find out their concerns as well as determine what improvements they would like to see.

Most residents that we spoke with had many of the same comments. These included:

1. *Residents would like the City to do something about snow removal strategy, as currently salt, gravel, & debris piles onto front yards and kills planting areas & turf.*
2. *Most residents seemed accepting of the idea to provide a detached walk located within the existing right-of-way.*
3. *Most residents did not like the idea of traffic moving closer to their homes if Pershing is widened.*
4. *Many residents would like to keep the parking located in the front of their homes, but seemed open to considering alley access.*
5. *Traffic backs up along Pershing west of school as cars wait to get into school drop-off area.*
6. *A turn lane is needed at Salem intersection – current condition is unsafe*

First Public Open House

On May 20, 2008 an open house was held in Carey Junior High School for the purpose of presenting and reviewing the project progress for the East Pershing Boulevard Improvements project. The project team presented a series of exhibits, including the following:

- A Project Overview, which outlined the project history, goals and funding mechanisms.
- An Opportunities and Constraints exhibit, which illustrated opportunities and constraints for consideration along the entire length of the corridor.
- Alternatives 1, 2, & 3, which illustrated three distinct approaches to the design of the corridor.
    - Alternative 1 provided 4 traffic lanes and left turn lanes at key intersections
    - Alternative 2 provided 4 traffic lanes plus a continuous center turn lane
    - Alternative 3 provided 4 traffic lanes and a center median
- A potential re-alignment of Concord & Logan at the Concord/Logan/East Pershing intersection.

Approximately 30 people from the community attended the Open House. Attendees were asked to comment on the displayed exhibits, as well as to complete a questionnaire regarding the corridor improvements. Several attendees elected to take the questionnaire home to fill it out and then mail it back to the project team. Based upon comments about the alternatives, one-on-one discussions with individuals, and responses collected in the questionnaire, there were six concerns that were consistently expressed:

1. *Keep driveways and garages accessible.*
2. *Add continuous left turn lanes along Pershing.*

3. *Move the parent and bus drop-offs for Carey Junior High to the back to eliminate congestion and increase safety.*
4. *Widen and / or buffer sidewalks for pedestrian use and safety, especially when "removed" snow is put on sidewalks.*
5. *Find a better way to control speeds on Pershing.*
6. *Improve intersections, especially at Carbon/Pershing, Converse/Pershing, and Concord/Logan/Pershing*.

Second Public Open House

On January 13, 2009 the second open house for the East Pershing Boulevard Corridor and Intersection project was held in Carey Junior High School for the purpose of presenting and reviewing the project progress for the East Pershing Boulevard Improvement project. The project team presented several land use alternatives as well as four distinct intersection alternatives.

Alternative 1

Alternative 1 consists of constructing additional lanes of traffic in an attempt to address the poor operating conditions. This alternative analyzes existing intersection layout adding one through lane to the westbound, eastbound and northbound approaches at Pershing Boulevard with Converse Avenue. This alternative is expected to provide better level of service with almost all movements operating at LOS D or better. However, the eastbound left turn at Pershing Boulevard at Converse Avenue would operate at LOS E. It would be reduce traffic crashes by about 10%. However, it would not address the other issues that were identified on the prior study.

Alternative 2

Alternative 2 would create a one-way segment of 19th Street between Converse and Pershing. Only eastbound traffic would be allowed on this segment. Any driver on Pershing and wanting to go west on 19th Street would need to go to Converse and Pershing and make a left turn and then a right turn at 19th Street. While traffic crashes are expected to be reduced by about 10%, the traffic conditions at Pershing and Converse would be worse than under existing conditions with longer lines of traffic and higher vehicle delays. It also would not address the other issues that were identified on the prior study.

Alternative 3

Alternative 3 consists of vacating 19th Street from between Converse and Pershing and routing the traffic up a widened Carbon Ave to Pershing Blvd was examined. This would create a cul-de-sac at the end of 19th Street near Converse, and force all 19th Street traffic to travel on Carbon to Pershing. A new traffic signal would likely be needed at Carbon and Pershing as a result. Because of the reduction in the number of intersections and having more of the approaches aligned at 90-degree angles, a 20% reduction in crashes is expected. However, the

quality of traffic flow is not expected to be acceptable at Pershing and Converse or at Pershing and Carbon. It would address many of the other issues that were identified on the prior study, but the overall delay at the intersection of Pershing and Converse would be significant.

Alternative 4

Alternative 4 consists of reconstructing the intersection as a two lane modern roundabout. Two lanes would be constructed on each entry and exit from the roundabout and also rotating in the circle. Vehicle speeds entering the roundabout will be about 15 to 20 MPH due to the entry angle of the approaches and speeds within the circulating lanes will be about 20 to 25 MPH. By virtue of the lower vehicle speeds, a modern roundabout has many inherent safety and operational benefits, and at this location is expected to reduce crashes by 50%. The quality of traffic flow is expected to be at acceptable levels into the future years, and this option does address many of the issues identified in the prior study.

Attendees to the open house were asked to provide feedback on the four intersection alternatives.

Based upon this input from attendees, as well as from questionnaires that were mailed in from residents, there were 5 concerns that were consistently expressed:

1. *Provide safe pedestrian crossings*
2. *Improve signal timing*
3. *Intersection spacing is to close*
4. *Improve access control to businesses*
5. *The existing intersection is confusing and difficult to navigate*

Meetings with Landowners

Frank Cole

In December 2008 EDAW met with the owner of the Cole Shopping Center to discuss future plans that he has for that property, as well as to receive input on the Converse Street and East Pershing intersection, and the design of the roadway. Several telephone conversations between EDAW and the landowner also occurred after this meeting. The representative for Safeway, which is the largest tenant in the shopping center, also attended a public meeting and asked for copies of the intersection alternatives, which were sent to both parties in draft form in early February. According to the landowner, there are no specific plans that are ready to be submitted to the City for redevelopment or changes to the existing center at this time, but he and Safeway are continuing discussions. The landowner has some reservations about the roundabout, and is not convinced it is the best solution for the intersection. The landowner mentioned potential conflicts with existing utilities that should be addressed when deciding upon the actual location and design of the roundabout. He suggested that the City consider moving the roundabout further north in order to avoid these conflicts. He also expressed concerns regarding the maintenance of landscaping adjacent to the roadway, suggesting that the walk be placed at the back of curb instead of separated from the roadway. His other suggestions include installing a complete, standard cross-section with medians and turn lanes in order to accommodate the traffic in the safest, most efficient manner, even if it requires purchasing all of the residences on the north side of the road.

Jerry Lopez

An Ayres Associates and a Cheyenne MPO representative met with Mr. Lopez on.

The Lopez's have lived in this location since 1987. He voiced three concerns:

1. The snowplows go through an average of three times and keep piling it up. They throw the snow almost to his retaining wall. He plows off of the sidewalk about 6-8 ft and tries to do this only once.
2. He has enough space in the back to park two vehicles. If he has to use the back parking area, there is an issue with the city not plowing the alley until much later than the streets. If there is a large amount of snow, it is very hard to remove it and get out. He shared a photo of a past snowstorm where his entire parking area was one big snowdrift, several feet high.
3. The article in the paper reminding residents that it is illegal to shovel snow into the street was shown to us. He asked, "Where am I to put this snow then?" We showed him that the tree lawn was for that purpose.

Transit Accommodations

Now is the time to review bus stop locations along the project area to ensure they are properly incorporated into the proposed improvement. Ayres Associates and the Cheyenne MPO both spoke with the Joe Dougherty, Transit Director of the Cheyenne Transit Program, to discuss the location of existing bus stops, as well as the relocation of two bus stops.

The first is located in front of the Cole Shopping Center. Because of the proposed intersection improvements the location of this Bus stop would be moved east a few hundred feet. The Bus stop would be located along East Pershing Boulevard in front of the Safeway store in the Cole Shopping Center. Mr. Dougherty did not see a problem with relocating this bus stop.

The second bus stop is located along the north side of East Pershing Boulevard just west of Carbon Avenue. The project team proposed to Mr. Dougherty to relocate this bus stop to the west, near Carey Junior High. Mr. Dougherty did not think this relocation would work because it created too much separation between bus stops for that route.

Coordination with the Cheyenne Transit Program needs to be continued during final design to ensure transit requirements are included in the final design.

Shape

Corridor

Design Alternatives

The Pershing Boulevard Corridor Study analyzes improvement alternatives for the roadway segment between Dunn Avenue and 19th Street. This roadway segment is currently constructed as a four-lane 48-foot wide curb-to-curb undivided facility with attached sidewalks and signalized intersection control at Concord Road, Logan Avenue, Converse Avenue and 19th Street. The speed limit on Pershing Boulevard is 35 mph. The segment of Pershing Boulevard to the west of Concord Road is constructed as a five-lane roadway with continuous opposing left turn lanes.

Existing traffic volumes range between 15,900 and 19,500 vehicles per day in the study corridor. According to the Cheyenne Metropolitan Planning Organization (MPO) traffic volumes on Pershing Boulevard are expected to increase by the year 2035 to a range of 18,800 to 21,500 vpd. This represents a moderate annual growth rate of 1.0 percent per year.

Existing crash data for study corridor, as shown on Table 1, indicates that during the four year time period between January 2002 through January 2007 there were a total of 140 crashes reported of which 38 crashes, or 27 percent, were located at the intersections of Concord Road and Logan Avenue with another 47 crashes, or 34 percent, located at the Converse Avenue intersection. The next highest intersection crash locations occurred at Carbon Avenue with 12 crashes and Salem Road with 10 crashes.

Intersection	*Crash Frequency*	*Crash rate (MEV)*
Dunn	1	0.03
Rollins	1	0.03
Hugur	2	0.05
23rd St	1	0.03
Concord	11	0.29
Logan	27	0.76
Rayor	3	0.12
Salem	10	0.39
Albany	2	0.08
Carbon Ave	12	0.42
Converse Ave	47	1.65
19th St	3	0.08
Henderson	20	0.49

Table 1 Crash Frequency and Rate by Intersection

Concord Road/Logan Avenue: Of the property damage crashes reported at both the Concord Road and Logan Avenue intersections with East Pershing Boulevard, 11 occurred at Concord Road and 21 occurred at Logan Avenue. Additionally, 6 injury crashes were reported in the four-year time frame at the East Pershing Boulevard/Logan Avenue intersection.

The crash rate and frequency for each of the 12 corridor intersections were analyzed to determine which intersections present a priority safety concern. A value of twice the average collision frequency and rate was chosen as the safety concern threshold. These values correspond to 22 crashes in the four-year period and a crash rate of 0.57 crashes per million vehicles entering the intersection. This methodology suggests that a detailed safety analysis should be performed for the intersections of East Pershing Boulevard at Concord Road/Logan Avenue and at Converse Avenue/19th Street.

At the intersection with Logan Avenue, the collision diagrams, which are included in Appendix E, show that 63 percent (17 of 27) of the crashes involved right angle collisions between eastbound through and westbound left-turning traffic movements. These crashes lead to 4 injury collisions. This crash pattern may be the result of need to improve signal progression or signal timing at the intersection in combination with high intersection traffic volumes and vehicles running the yellow/red indication or signal visibility.

Potential safety countermeasures may include updated signal phase sequencing and timings and intersection geometry reconfiguration.

Other factors such as roadway pavement condition, lighting conditions and driving under the influence can negatively affect a driver's ability to perceive, react, and make a decision and respond to a critical situation on the road. In this case, none of these factors were considered to be contributing factors in the frequency and crash patterns at the study intersections. The crash data indicates that the majority of crashes are occurring under dry and clear roadway conditions. Driving under the influence (DUI) was present in only one crash in the four years under analysis. Therefore, DUI is not considered a significant factor in crash frequency in this area.

Converse Avenue/19th Street: At the Converse Avenue/19th Street intersections the collision diagrams, which are included in Appendix F, show that 60 percent (28 of 47) of the crashes involved right angle collisions, predominantly involving westbound through traffic colliding with eastbound left turns and northbound left turns. In addition to the 28 right angle crashes, 11 other crashes, or 23 percent, involved rear end collisions. These crashes lead to 11 injury collisions. This crash pattern may be the result of need to improve signal progression or signal timing at the intersection in combination with high intersection traffic volumes and vehicles running the yellow/red indication or signal visibility.

Potential safety countermeasures may include updated signal phase sequencing and timings and intersection geometry reconfiguration.

Other factors such as roadway pavement condition, lighting conditions and driving under the influence can negatively affect a driver's ability to perceive, react, and make a decision and respond to a critical situation on the road. In this case, none of these factors were considered to be contributing factors in the frequency and crash patterns at the study intersections. The crash data indicates that the majority of crashes are occurring under dry and clear roadway conditions. Driving under the influence (DUI) was present in only one crash in the four years under analysis. Therefore, DUI is not considered a significant factor in crash frequency in this area.

Salem Avenue: There were 10 accidents at the intersection of East Pershing Boulevard and Salem Avenue between January 1, 2002 and December 31, 2006. Of the accidents that occurred 60 percent were rear end accident for vehicles waiting to turn left on to Salem Avenue,

see Appendix G. This may be caused by the poor sight distance at this location due to the crest vertical curve west of Salem Avenue and the steep grade at the intersection. The sight distance has been measured to be approximately 270 feet instead of the requires 540 feet required for principal arterial streets with a grade greater the 5 percent. The grade for this section of East Pershing Boulevard is 6.7 percent.

The project team proposes to improve the sight distance by reducing the grade to 6 percent and lengthening the crest vertical curve. The addition of a left turn lane at this location is also recommended to eliminate vehicles stopping in the through lanes.

Roadway Alternatives

A set of roadway improvement alternatives were studied for the corridor involving:

1. Maintain the existing 48-foot undivided roadway cross section
2. Construct a five-lane roadway with continuous left turn lanes
3. Construct a median divided four-lane roadway

Under each of these three roadway improvement alternatives the cross street intersections at both Huger Avenue and Big Horn Avenue would be a cul-de-sac due to their close proximity to left turning activity with Concord Road and Carbon Avenue, respectively. Access management studies have documented that a reduction in traffic conflicts point, especially in close proximity to intersection influence areas, reduces crashes and improves traffic flow efficiency.

Roadway Alternative 1: Maintain Existing Cross Section

Under this alternative, the existing four-lane undivided roadway cross section would be maintained except that the through traffic lanes would be widened from 10.5 feet to 11 feet. Pedestrian conditions would be improved by constructing a standard 6-foot wide sidewalk with a curb separation buffer of 8.5 feet on the south side of Pershing Boulevard. On the north side of Pershing Boulevard an 8-foot wide mixed-use path would be constructed with a curb separation buffer of 8.5 feet as shown on Figure 11. Pedestrian conditions would be improved with construction of a 6-foot wide sidewalk and a grassed or paved separation between the sidewalk and through traffic lanes. Additional pedestrian improvements would include intersection crosswalk design enhancements. The 8.5 foot tree lawn will also provide snow storage, so snow plowed off the street will not be placed on the sidewalk for the residents to remove. The total right of way under this alternative is 80-feet with a roadway curb-to-curb width of 51 feet. This improvement alternative minimizes impacts on adjacent properties while upgrading to standard roadway design criteria.

This cross section alternative has a daily operating design capacity of 17,000 vehicles per day. Existing property accessibility would remain relatively unchanged under this alternative. Driveways at some commercial businesses in close proximity to intersections would be eliminated to improve intersection operation and safety. In those cases, accessibility would be provided from cross streets or rear access alleyways. This improvement alternative enhances pedestrian safety and comfort along the corridor. On-street bicycle lanes are not considered for construction with this alternative.

Alternative Roadway Improvement 2: Five-Lane Roadway with a Continuous Left Turn Lane

Under this alternative, Pershing Boulevard would be widened to accommodate a continuous left turn lane similar to the existing roadway segment to the west, as shown on Figure 12. This alternative provides improved roadway capacity by removing left turning vehicles from through traffic lanes, but increases pedestrian crossing distance on Pershing Boulevard. This alternative increases the existing 10.5-foot lanes to 11-foot wide through traffic lanes and adds a center 11-foot continuous left turn lane. Included in this alternative would be standard 6-foot wide sidewalk on the south side of Pershing Boulevard and an 8-foot wide path on the north side with a 2-foot wide paved sidewalk buffer between moving traffic lanes on Pershing Boulevard. The total right-of way required for this alternative is 80 feet with a 58-foot wide curb-to-curb roadway.

This cross section alternative has a daily operating design capacity of 21,000 vpd.

Roadway Improvement Alternative 3: Median Divided Cross-Section

Under this alternative, Pershing Boulevard would be widened to accommodate a raised 11-foot wide median with two 11-foot wide travel lanes in each direction as shown on Figure 13. This alternative provides improved roadway capacity by removing left turning vehicles from through traffic lanes, improved pedestrian safety with median refuge areas and aesthetics with landscaping treatments in the median. Included in this alternative would be standard 6-foot wide sidewalks on the south side of Pershing Boulevard and an 8-foot wide mixed-use path on the north side with 2- foot paved sidewalk buffers located between moving traffic lanes on Pershing Boulevard and the southern sidewalk and the northern mixed use path. The total right-of way required for this alternative is 80 feet.

This cross section alternative has a daily operating design capacity of 25,000 vpd. This improvement enhances pedestrian comfort and safety.

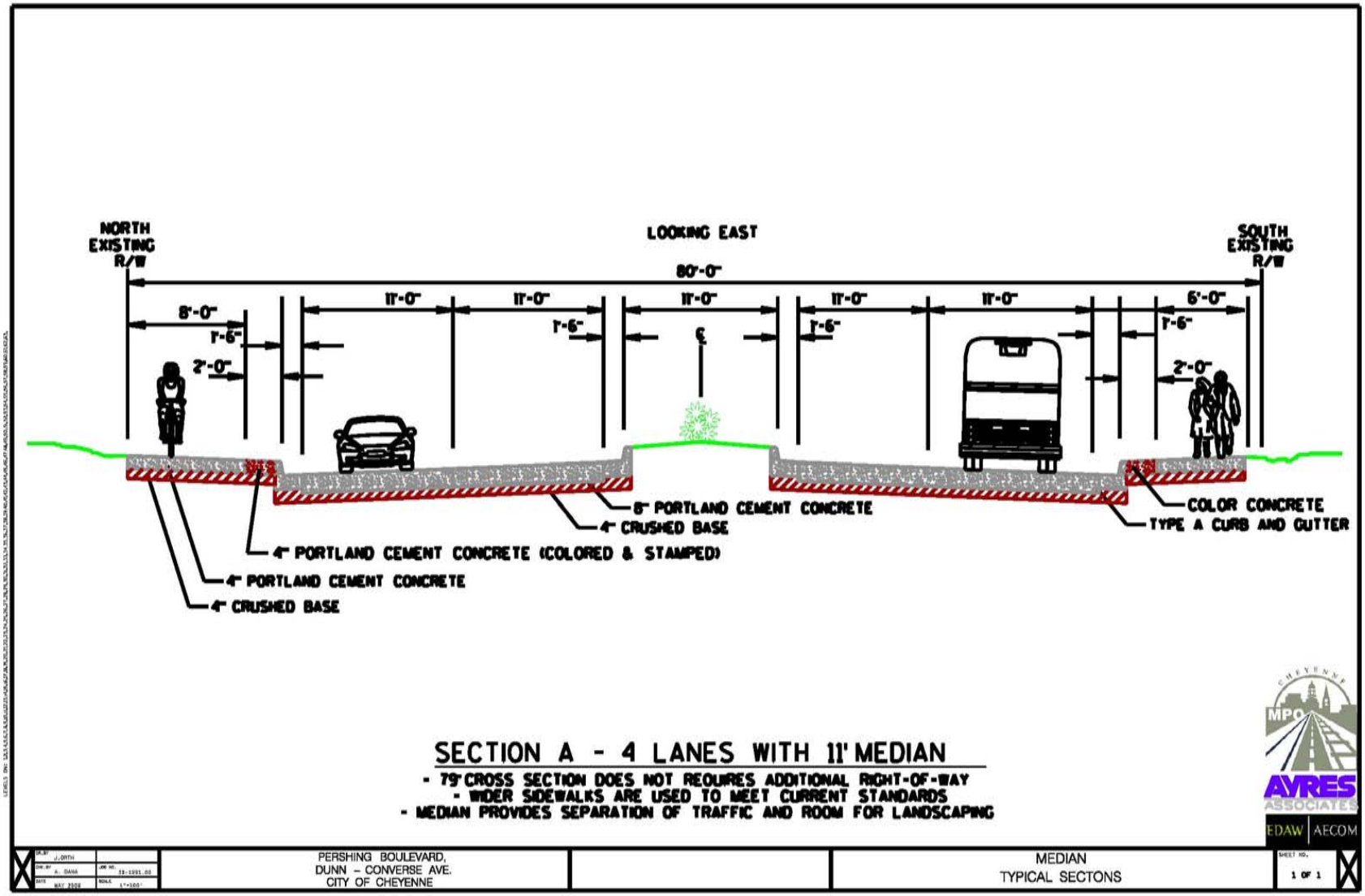


Figure 11 Cross Section Avenue – Alternative 1

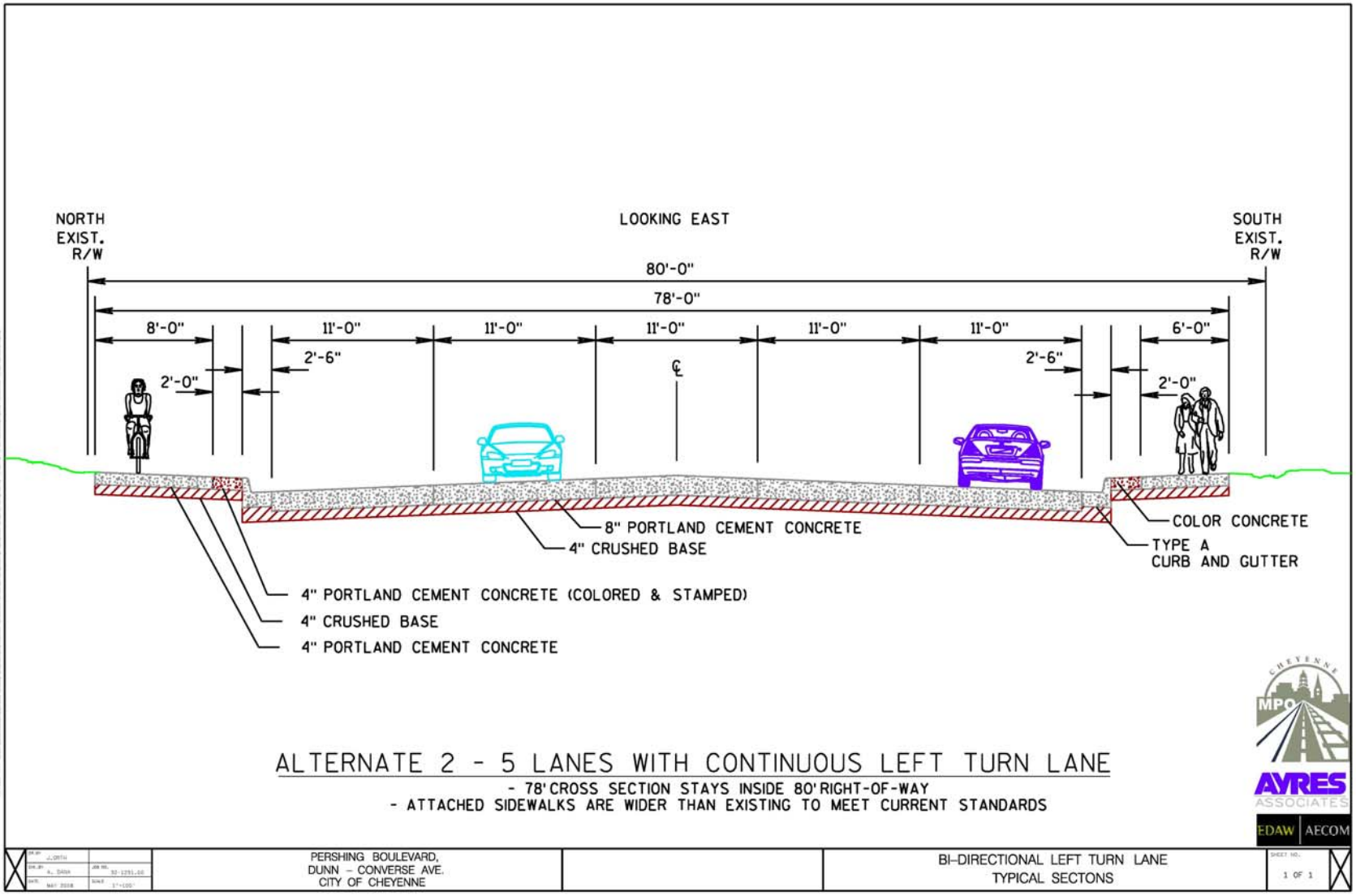


Figure 12 Cross Section Alternative – Alternative 2

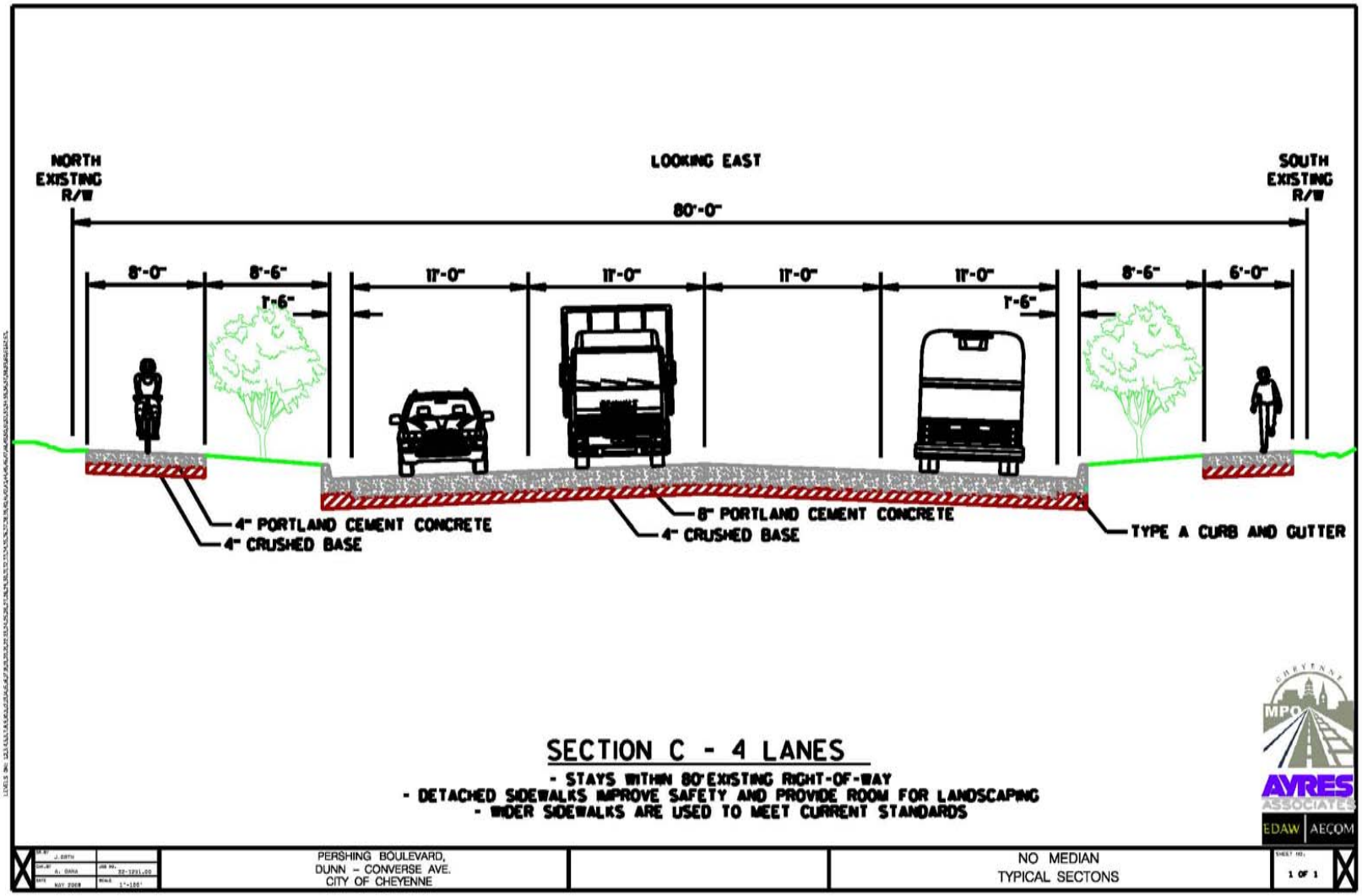


Figure 13 Cross Section Alternative – Alternative 3

Pedestrian / Bicycle Issues

The existing sidewalk along East Pershing Boulevard is a 3.5-foot wide attached facility located along both the north and south sides of the street. A 3.5-foot wide sidewalk does not allow pedestrians to walk side by side or pass each other in opposite directions without requiring one of the pedestrians to walk on adjacent grass or roadway surfaces. It is recommended that all sidewalks segments along Pershing Boulevard be reconstructed to a minimum width of 6 feet and that wherever possible separated from the roadway curb traffic lanes. Attached sidewalks are not conducive to pedestrian utilization, especially by children. This improvement will also be included on all cross street approaches to Pershing Boulevard.

Traffic volumes and speeds do not provide a safe condition for bicycle users who would be required to use through traffic lanes on Pershing Boulevard. Therefore an 8-foot wide mixed-use path is recommended along the north side of Pershing Boulevard to safely accommodate both pedestrians and bicycle users in the corridor.

Intersection Improvement Alternatives

There are two principal locations along the Pershing Boulevard corridor where major improvements are required for traffic safety and operating condition requirements. The Concord Road/Logan intersection network and the Converse Avenue/19th Street intersection network. Minor improvements are also analyzed at the Salem Road and Carbon Avenue intersections.

Pershing Boulevard Intersections with Concord Road and Logan Avenue

The Pershing Boulevard intersections with Concord Road and Logan Avenue are closely spaced with a 175-foot separation and are controlled by traffic signals. Concord Road intersects East Pershing Boulevard from the north as a T-intersection at a perpendicular angle. Logan Avenue intersects East Pershing Boulevard from the south at a skewed angle.

In 2007, turning movement counts were collected at both of the intersections. The peak traffic hours along the corridor occur from 7:15 to 8:15 AM in the morning and from 4:30 to 5:30 PM in the evening. The existing 2007 peak hour traffic volumes were increased by an annual growth rate of 2 percent per year to reflect average daily traffic (ADT) growth projections developed by City of Cheyenne Metropolitan Planning Organization (MPO). Average daily traffic and turning movement volumes for the project design year 2035 are included in Appendix H. As previously noted, these two intersections experience the second highest number of crashes in the Pershing Boulevard corridor with a total of 38 crashes over the past four years.

In order to assess traffic operation impacts at the Concord Road and Logan Avenue intersections it is necessary to identify existing intersection operating conditions. Figure 14 shows existing conditions.

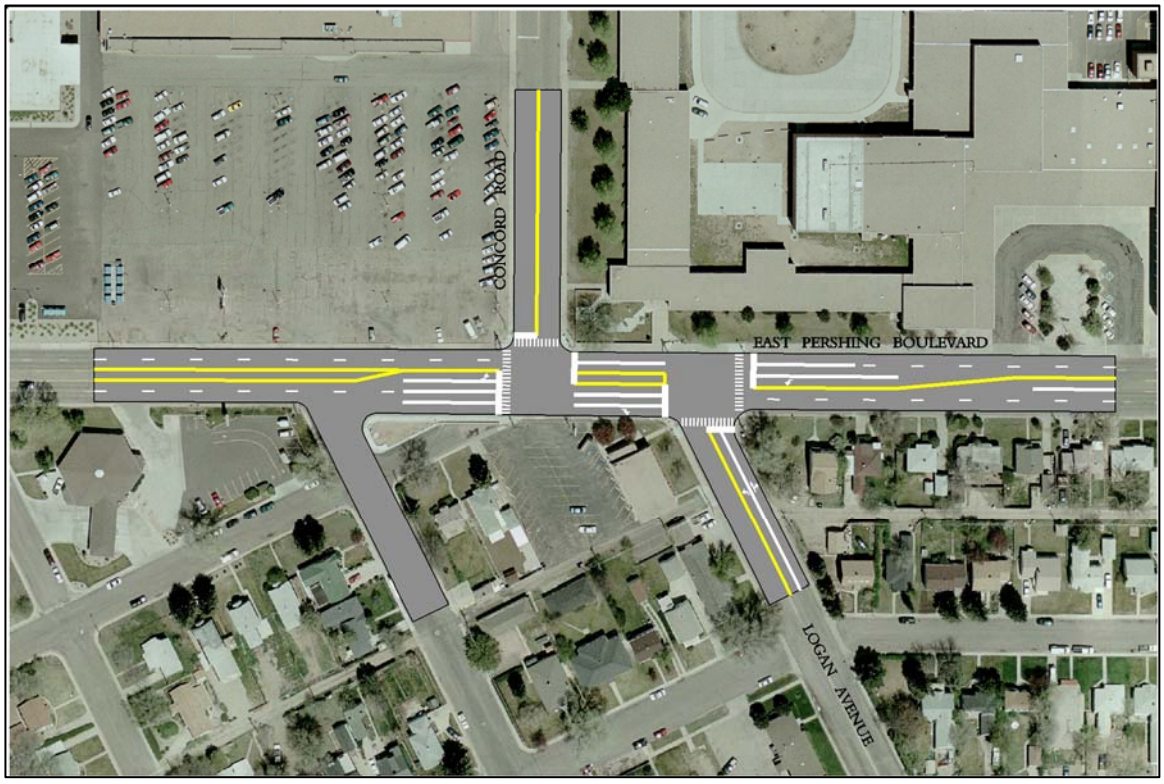


Figure 14 Existing Conditions (existing geometrics and traffic control)

Improvement Alternatives

The following three intersection improvement alternatives were evaluated at the Concord Road and Logan Avenue intersections with East Pershing Boulevard:

1. Existing Conditions with Optimized Traffic Signal Timing and Phasing
2. Intersection Realignment to a Standard Four-leg Design
3. Increased Intersection Spacing with Optimized Traffic Signal Timing

Intersection Improvement Alternative 1: Existing Conditions with Optimized Traffic Signal Timing and Phasing

This alterative maintains existing intersection spacing and geometrics but optimizes signal timing and phasing to reduce delays and queuing. A protected-permissive left turn phase for eastbound traffic turning onto Logan Avenue is added to the signal operation. This will allow left turning vehicles to make their turn on a green arrow as well as on the green ball signal display.

Intersection Improvement Alternative 2: Intersection Realignment to a Standard Four-leg Design

This improvement alternative eliminates the closely spaced offset intersections and creates a standard four-leg intersection as shown in Figure 15.

Figure 15 Alternative 2 - Intersection Realignment to a Standard Four-leg Design

Intersection Improvement Alternative 3 – Increased Intersection Spacing with Optimized Traffic Signal Timing

This intersection improvement alternative eliminates the skewed angle at the East Pershing Boulevard/Logan Avenue intersection by realigning Logan Avenue to the east by 70 feet. This results in an increased spacing between Concord Road and Logan Avenue to 245 feet, as shown in Figure 16. Traffic signal control timing is optimized.

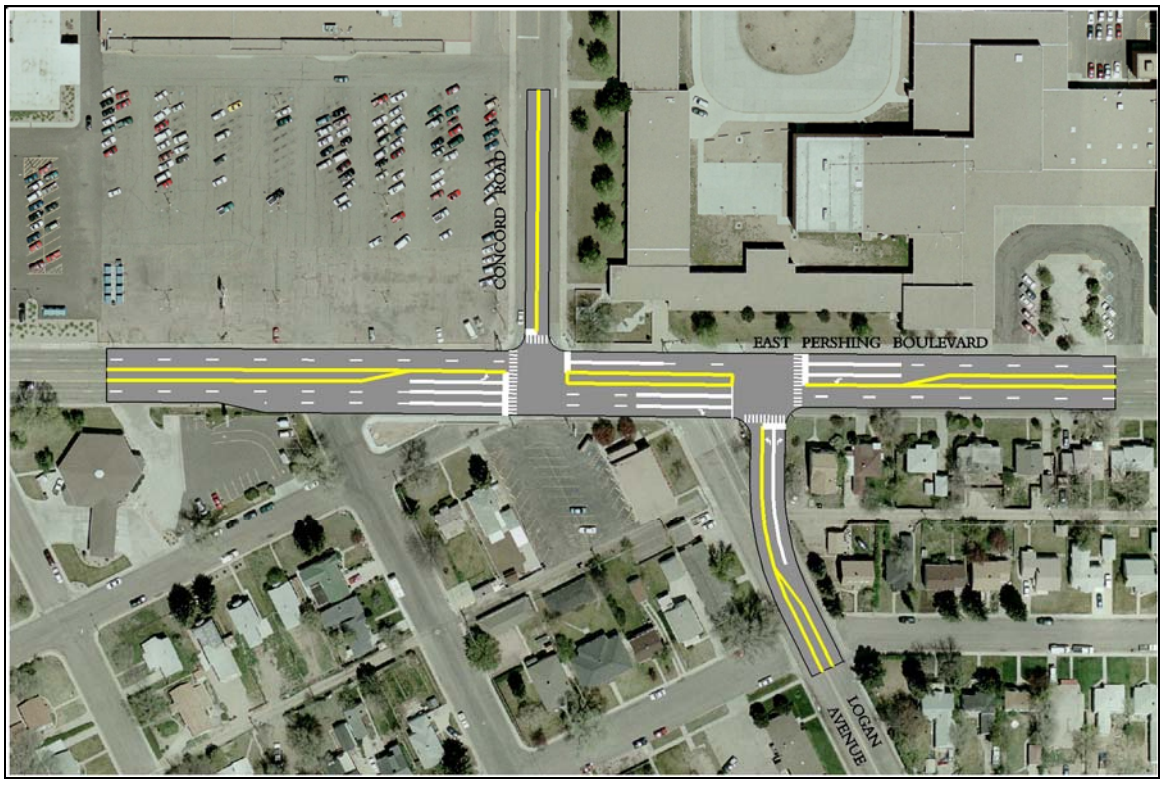


Figure 16 Alternative 3 - Increased Intersection Spacing with Optimized Traffic Signal Timing

Each of these intersection improvement alternatives were evaluated for their impact on intersection operating conditions.

Intersection Operation

Existing intersection turning movement volumes for the study peak hours with existing intersection geometrics were used to determine existing intersection operating conditions. The analysis was conducted based on the methodology of the 2000 Highway Capacity Manual (HCM). The measures of effectiveness used to report the intersection operating conditions are Level of Service (LOS) and queuing.

As defined by the HCM, LOS is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. More specifically for signalized intersections, LOS is directly related to the average control delay per vehicle. LOS may vary from a LOS 'A' to a LOS 'F'. The Table 2 describes this ranking system.

Table 2 LOS Criteria for Signalized Intersections

Alpha LOS	*Signalized Delay* (sec/veh)	*Description*
A	< 10	No Congestion
B	> 10 - 20	No Congestion
C	> 20 - 35	Minimal Congestion
D	> 35 - 55	Moderate Congestion
E	> 55 - 80	Severe Congestion
F	> 80	Extreme Congestion

Currently, during the morning peak hour, the intersection of Pershing Boulevard and Concord Road operates at acceptable level of service except for the eastbound left turn. This movement operates at LOS 'D', which declines to LOS 'F' during the evening peak period, with vehicle queues extending beyond the left turn lane blocking the adjacent eastbound through lane traffic.

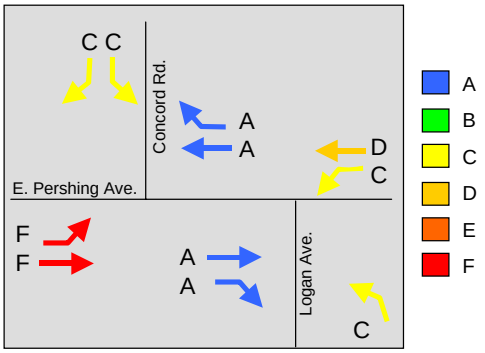
The following summarizes the LOS and queue results by traffic movements for each Alternative at the Concord Road and Logan Avenue intersections with East Pershing Boulevard.

Existing Conditions

Analysis of the existing intersection geometry with existing traffic signal control indicates that two traffic movements are anticipated to operate below LOS 'D' during the year 2035 evening peak period. These movements are the eastbound through and left turn movements at the East Pershing Boulevard/Concord Road intersection. Queuing outside of the intersections on East Pershing Boulevard is expected to range from 350 feet to 400 feet in the west and eastbound directions, respectively. The internal queuing eastbound between the intersections extends to a length of100 feet, which is over half of the available distance between the intersections. The left turn movements at Concord Road and Logan Avenue are expected to operate with queue lengths ranging from 100 to 150 feet during the 2035 PM peak travel hour. The following diagram displays the expected 2035 PM peak period LOS and queues under existing conditions.

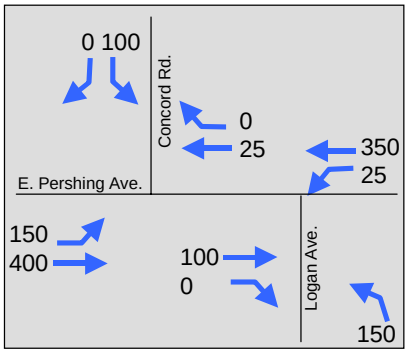
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



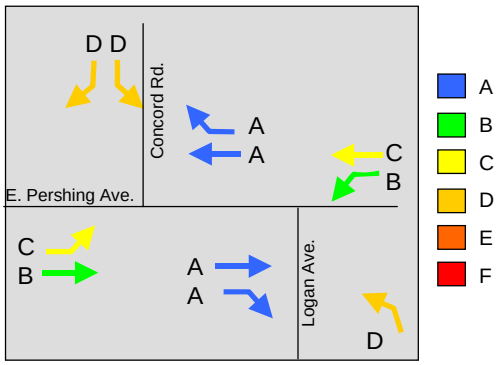
2035 PM Peak Hour LOS and Queue Lengths for Existing Geometry

Improvement Alternative 1 – Existing Conditions with Optimized Traffic Signal Timing and Phasing

This alternative analyzes traffic operation with existing intersection geometry and optimized traffic signal control. All intersection peak hour movements under Improvement Alternative 1 are expected to operate at LOS 'D' or better in the year 2035. Coordination of signal timings and the inclusion of an eastbound protected-permissive left turn phase results in improved LOS operation on the east and westbound approaches on East Pershing Boulevard but lowers the LOS on the southbound Concord Road and northbound Logan Avenue approaches. Queuing on East Pershing Boulevard outside of the intersections reaches maximum lengths of 250 feet in the eastbound and 300 feet in the westbound directions. Queuing between the intersections is minimal at 25 feet. Concord Road and Logan Avenue are expected to operate with maximum left turn queues of 150 in the southbound direction and 175 feet in the northbound direction during the 2035 evening peak travel hour. The following diagram displays the expected 2035 evening peak period LOS and queuing for Improvement Alternative 1.

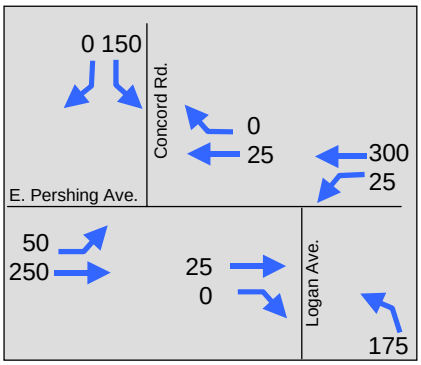
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

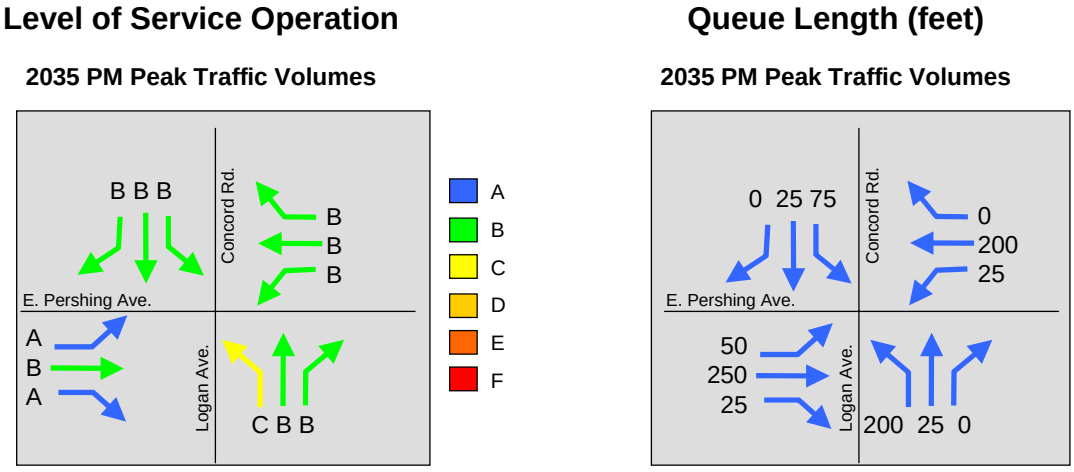
2035 PM Peak Traffic Volumes



2035 PM Peak Hour LOS and Queue Lengths for Alternative 1 - Existing Conditions with Optimized Traffic Signal Timing

Alternative 2 – Intersection Realignment to a Standard Four-leg Design

Improvement Alternative 2 analyzes future traffic conditions with a realigned intersection that eliminates the current closely spaced offset 'T' intersections between Concord Road and Logan Avenue resulting in a standard four-leg intersection design as shown in Figure 15. This alternative results in all traffic movements operating at LOS 'B' or better in the year 2035 with the exception of the northbound left turn which is expected to operate at a LOS 'C'. Queuing on East Pershing Boulevard is reduced to approximately 200 feet westbound and 250 feet on the eastbound approach. The southbound left turn is expected to operate with shorter queues than the northbound left at the four-leg intersection. The northbound queue on the Logan Avenue intersection approach is expected to reach a length of 200 feet. The following diagram displays the expected 2035 evening peak period LOS and queuing with Improvement Alternative 2.



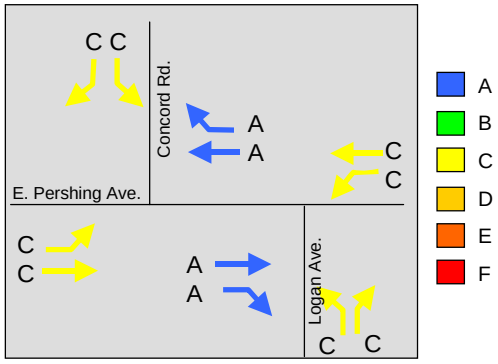
2035 Evening Peak Hour LOS and Queuing for Alternative 2 – Intersection Realignment

Alternative 3 – Increased Intersection Spacing with Optimized Traffic Signal Timing

This improvement alternative analyzes traffic operation with an increased separation of 70 feet in intersection spacing between the intersections of Concord Road and Logan Avenue along East Pershing Boulevard. The total separation between intersections is increased from 175 to 245 feet. The south approach at the intersection of Logan Avenue with Pershing Boulevard is realigned to create a right angle approach increasing sight distance and safety for vehicles entering the intersection. This alternative results in all traffic movements operating at LOS C or better in the year 2035. Queuing on East Pershing Boulevard is maintained outside of the intersections with queue lengths of 250 feet in the eastbound and 325 feet in the westbound directions. Concord Road and Logan Avenue are expected to operate with left turn queues of approximately 150 feet during the 2035 evening peak travel hour. The following diagram displays the expected 2035 evening peak period LOS and queuing with Improvement Alternative 3.

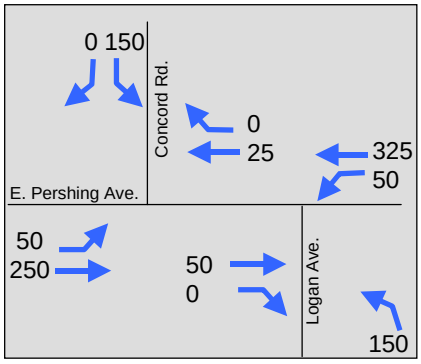
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



2035 PM Peak Hour LOS and Queue Lengths for Alternative 3 – Increased Intersection Spacing with Optimized Traffic Signal Timing

Access

There are two church driveways located on the south side of East Pershing Boulevard just west of Concord Road.

The Carey Junior High School has a drop off area east of Logan Avenue. This circular driveway includes parking for approximately 10 vehicles and serves as a drop off zone for students.

Hugur Avenue is located on the eastbound approach to Concord Road intersection. Under all three-intersection improvement alternatives it is expected that Hugur Road would be a cul-de-sac to remove traffic conflicts in close proximity to the Concord Road/Logan Avenue intersections.

There are multiple residential driveways along East Pershing Avenue east of Logan Avenue. These homes also have access to Logan Avenue from an alleyway located along the south boundary of their properties. Driveways located near the Concord Road and Logan Avenue intersections with East Pershing Boulevard are expected to remain similar to the existing configuration for each of the proposed Improvement Alternatives with exception to Alternatives 2 and 3.

Alternative 2 would impact driveway accesses on Concord Road due to the relocation of Concord Road to the east. Similarly, Alternative 3 would impact driveway accesses on Logan Avenue due to the relocation of Logan Avenue to the east.

Safety

Traffic safety is expected to be improved at the Concord Road/Logan Avenue intersection network under each improvement alternative. Under improvement Alternative 1, improved signal timings and phasing are expected to reduce vehicle stops and delays, which in turn will decrease the potential for rear end and angle crashes. In addition, the conversion of the eastbound permitted left turn to protected-permitted operation is expected to result in a reduction of left turn collisions at the intersection. These countermeasures will likely decrease left turn, rear end and angle type crashes by 18 percent according to a Federal Highway Administrations study of crash reduction factors. Under improvement alternative 2, injury and fatal crashes at the intersection are expected to be reduced by 35 percent. Property damage crashes are expected to be reduced by 15 percent. In comparison improvement alternative 3, with increased spacing and improvement in signal timing is expected to reduce crashes by 18 percent with the elimination of the skewed intersection approach on Logan Avenue can be expected result in a 12 percent crash reduction.

Pedestrian / Bicycle Issues

A primary purpose of the East Pershing Boulevard Corridor and Intersection Plan is to create a pedestrian friendly environment that is safe, visually pleasing, accessible and comfortable. The current pedestrian sidewalk system is located adjacent to the travel way. The lack of a buffer zone between pedestrians and vehicular traffic discourages pedestrians from using the existing sidewalk facilities, which is also narrower than current design standards. The signalized intersection of East Pershing Boulevard and Concord Road provides pedestrian walk indications, improving pedestrian safety when crossing the street. However, the crosswalk pavement marking is almost non-existent reducing visibility to vehicular drivers of the dedicated pedestrian crosswalks.

There is no dedicated marked bicycle lane on East Pershing Boulevard. Bicyclists drive on though traffic lanes operating similar to a vehicle, ride on the right side of the travel lane near the curb, which is undesirable, or ride on the sidewalk contending with pedestrians.

Carey Junior High School, Cheyenne Baptist Church and First Baptist Church are located near the intersections of Concord Road and Logan Avenue with East Pershing Boulevard; both organizations generate pedestrian and bicyclist activities.

Existing crosswalks can be enhanced through increased walk times at signalized intersections, the installation of pedestrian count down timers, and enhanced pavement markings. Additional pedestrian enhancements would include the use of continental pavement markings at the pedestrian crosswalks at the Concord Road and Logan Avenue intersections with East Pershing Boulevard. School zone signing could be enhanced in conformance with guidelines in the Manual of Uniform Traffic Control Devices.

ADA improvements will be constructed at the intersection(s) to provide Type 2 ramps and pedestrian crossing push buttons in accordance to ADA standards.

Additional pedestrian enhancements will include the provision of median pedestrian refuge design considerations that can be incorporated in roadway cross-section Improvement Alternative 2 with a four-lane median divided roadway.

Pershing Boulevard Intersections with Converse Avenue and 19th Street

Existing Conditions

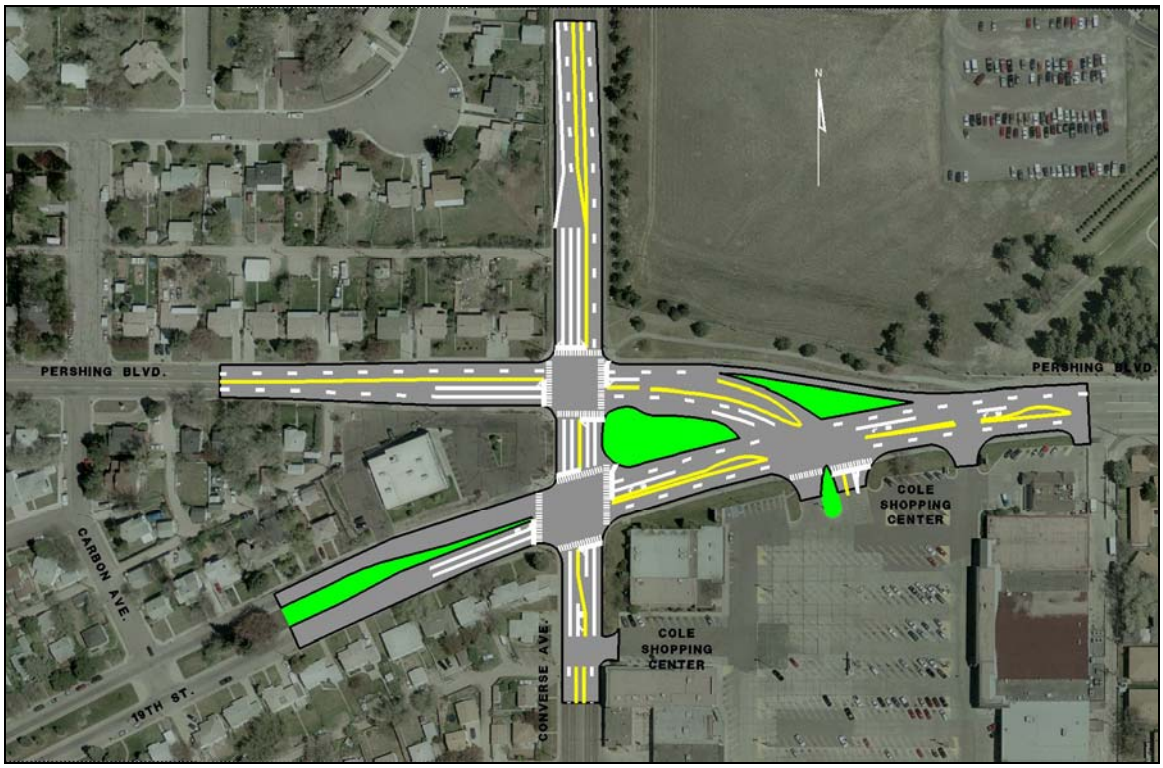


Figure 17 Existing Conditions

Alternatives Reviewed

For the Pershing Boulevard intersections with 19th Street and Converse Avenue a set of six improvement alternatives were studied. This analysis is based on intersection operation with traffic growth projections for the year 2035. The six improvement alternatives analyzed involve:

1. Existing Conditions with Optimized Traffic Signal Timing
2. Geometric Improvements with Optimized Phasing and Timing
3. One-Way 19th Street
4. Carbon Avenue Route with One-Way 19th Street
5. 19th Street Closure
6. Modern Roundabout

Improvement Alternative 1 – Existing Conditions with Optimized Traffic Signal Timing

This improvement alternative maintains existing intersection geometry with optimized traffic signal timings.

Improvement Alternative 2 – Geometric Improvements with Optimized Phasing and Timing

Under this improvement alternative the existing intersection capacity is increased by constructing an additional through lane at the Pershing Boulevard intersection with Converse Avenue on the westbound, eastbound and southbound approaches. These additional lanes are maintained at the Pershing Boulevard intersection with 19th Street and Converse Avenue at 19th Street. Complete geometrics for the improvement alternative are shown Figure 18.

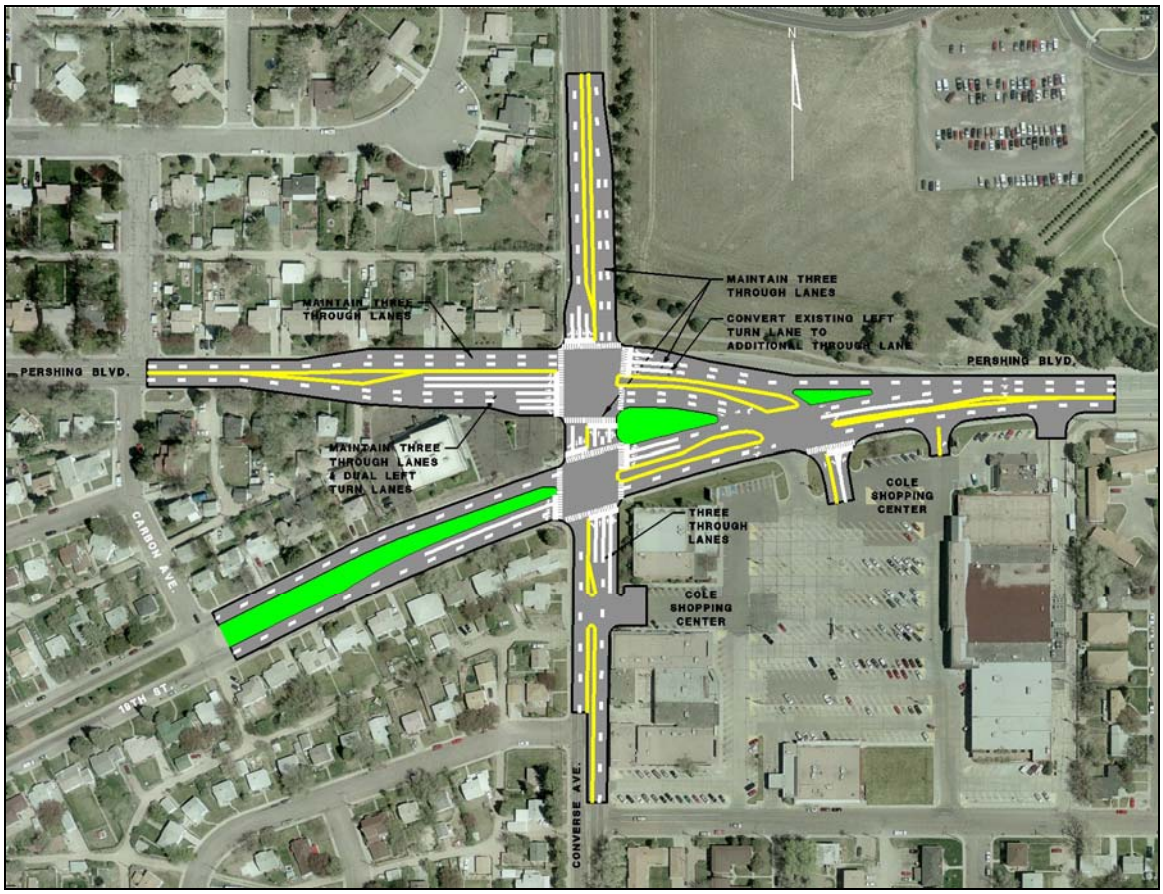


Figure 18 Alternative 2 – Geometric Improvements with Optimized Phasing and Timing

Alternative 3 – One Way 19th Street

Alternative 3 restricts the segment of 19th Street between Converse Avenue and Pershing Boulevard to one-way eastbound traffic as shown in Figure 7. Westbound traffic would be required to continue on Pershing Boulevard and either turn left at Converse Avenue or continue through and turn left at Carbon Avenue. This alternative requires the construction of dual westbound right turn lanes on 19th Street at Pershing Boulevard and on the westbound approach of Pershing Boulevard at Converse Avenue

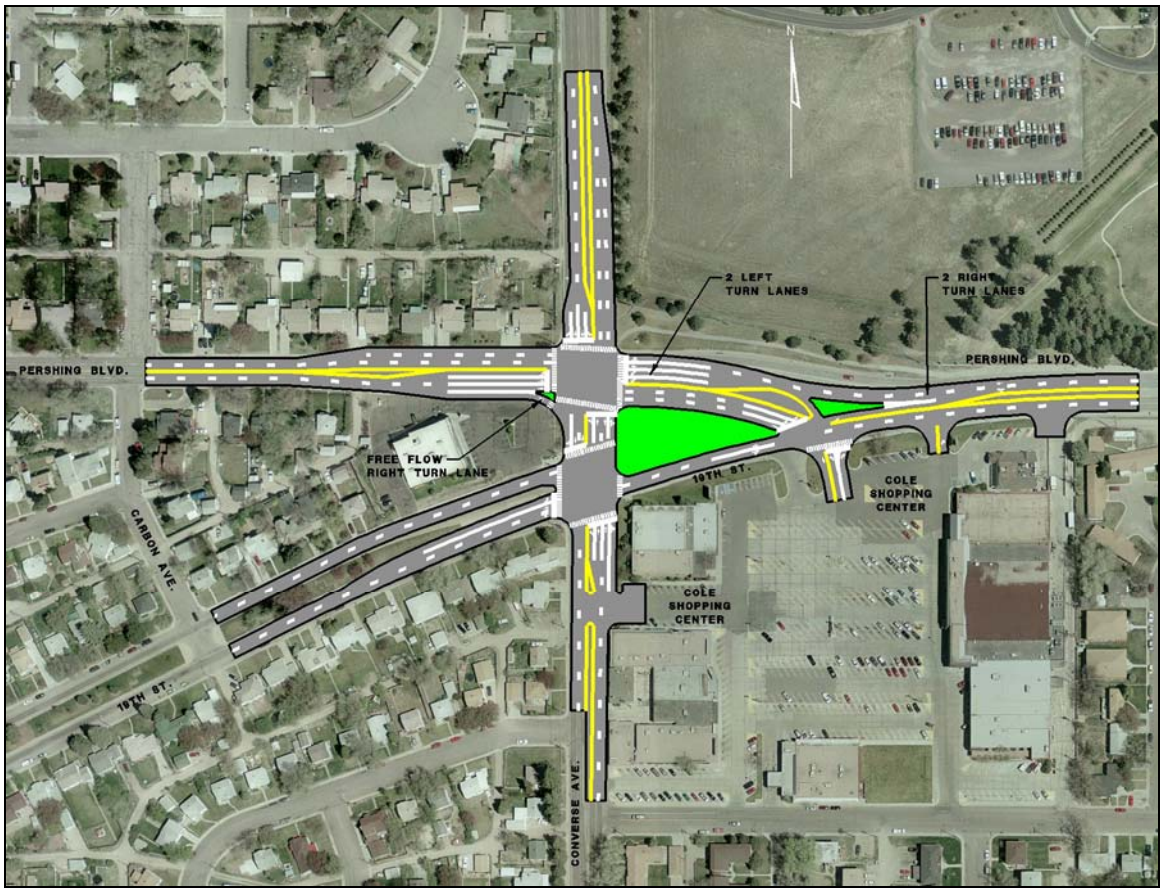


Figure 19 Alternative 3 – One Way 19th Street

Alternative 4 – Carbon Avenue with One Way 19th Street

This improvement alternative restricts the segment of 19th Street between Converse Avenue and Pershing Boulevard to one-way eastbound traffic redirecting westbound traffic onto Converse Avenue and later taking a left turn at Carbon Avenue. The re-routing traffic through Carbon Avenue requires a new traffic signal at the intersection with Pershing Boulevard.

The analyzed geometric improvements are shown in Figure 20.

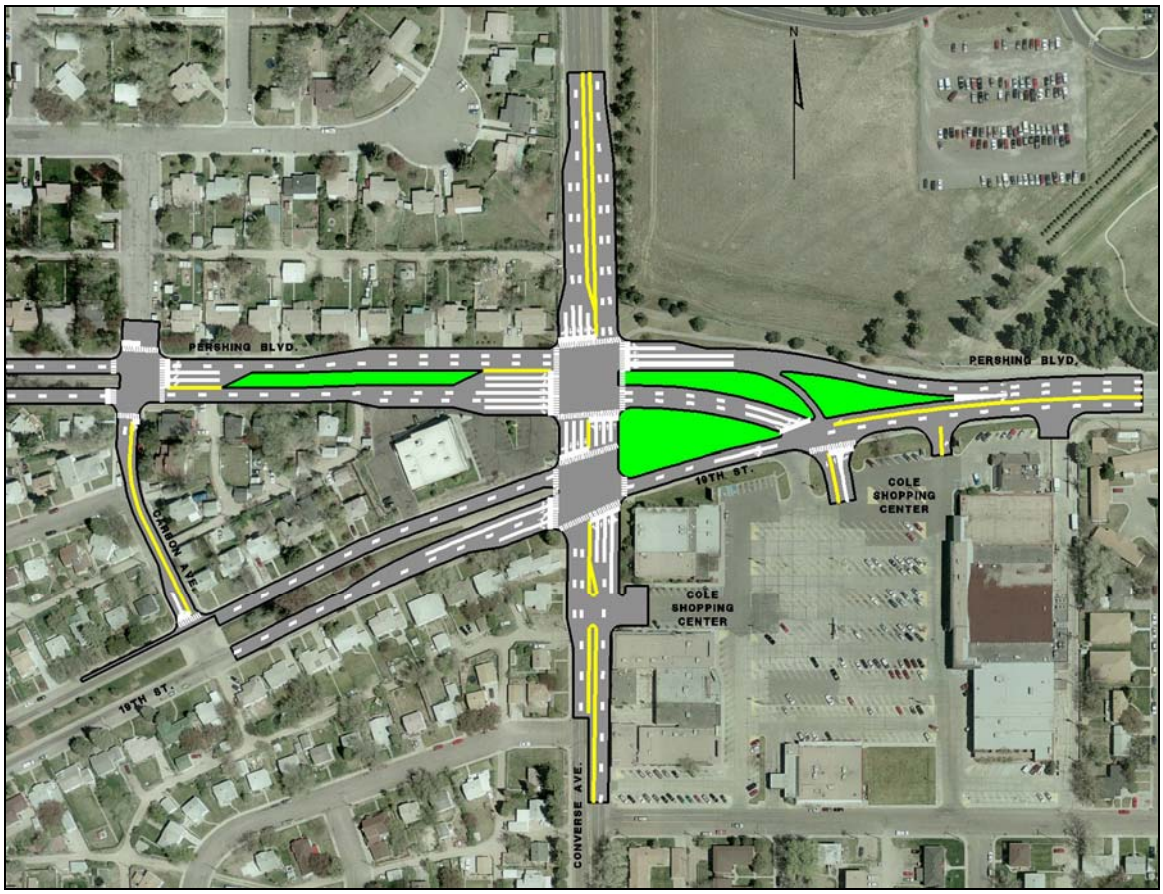


Figure 20 Alternative 4 – Carbon Avenue with One Way 19th Street

Alternative 5 – 19th Street Closure

Alternative 5 analyzes traffic operating conditions with removal of the 19th Street approaches to Converse Avenue. Traffic traveling on 19th Street eastbound will have to turn left at Carbon Avenue proceeding to Pershing Boulevard, where they will make a right turn to continue their route. Traffic traveling westbound at the existing Pershing Boulevard at 19th Intersection will have to remain on Pershing Boulevard proceeding through Converse Avenue intersection until Carbon Avenue intersection where they will make a left turn to get back into 19th Street. The analyzed geometric improvements are shown in Figure 21.

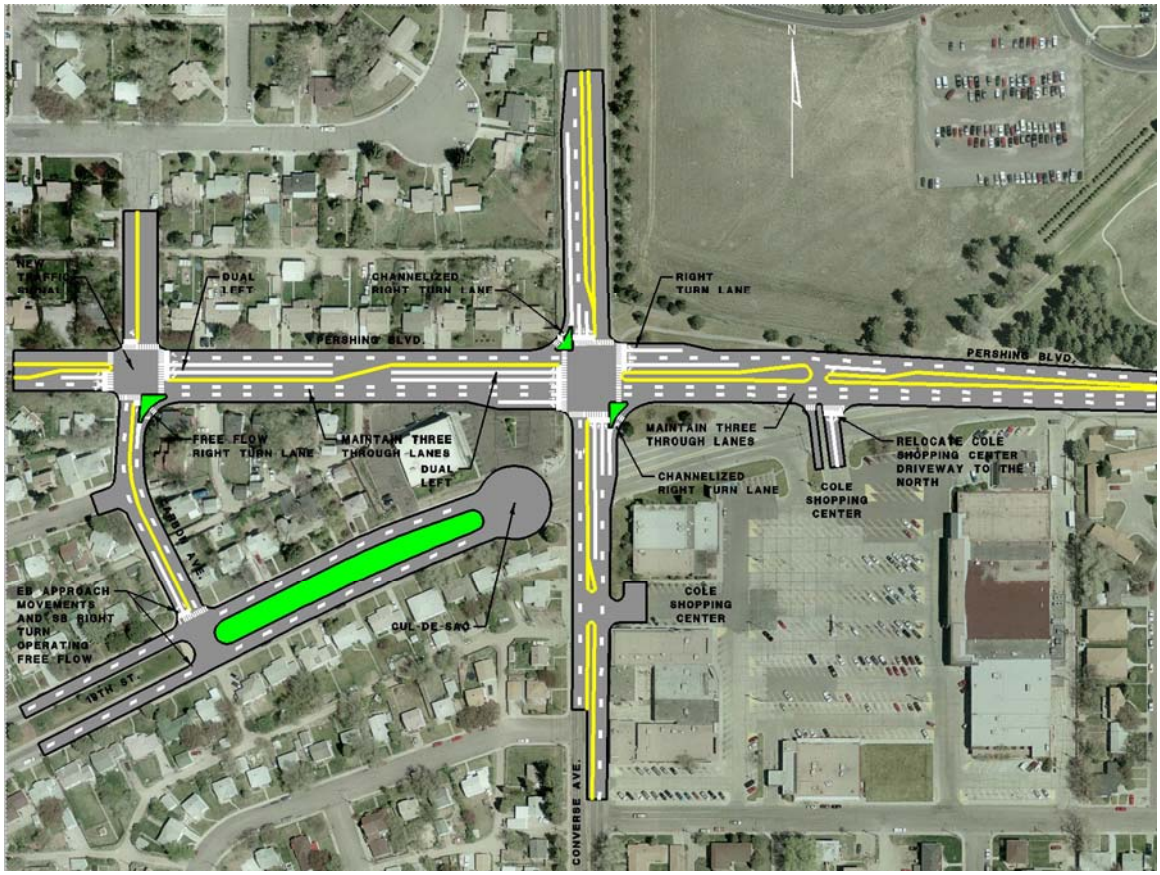


Figure 21 Alternative 5 - 19th Street Closure

Alternative 6 – Modern Roundabout

This alternative involves the construction of a dual-lane modern roundabout to improve traffic flow and safety at the Pershing Boulevard intersections with Converse Avenue and 19th Street and the 19th Street intersection with Converse Avenue as shown in Figure 22.

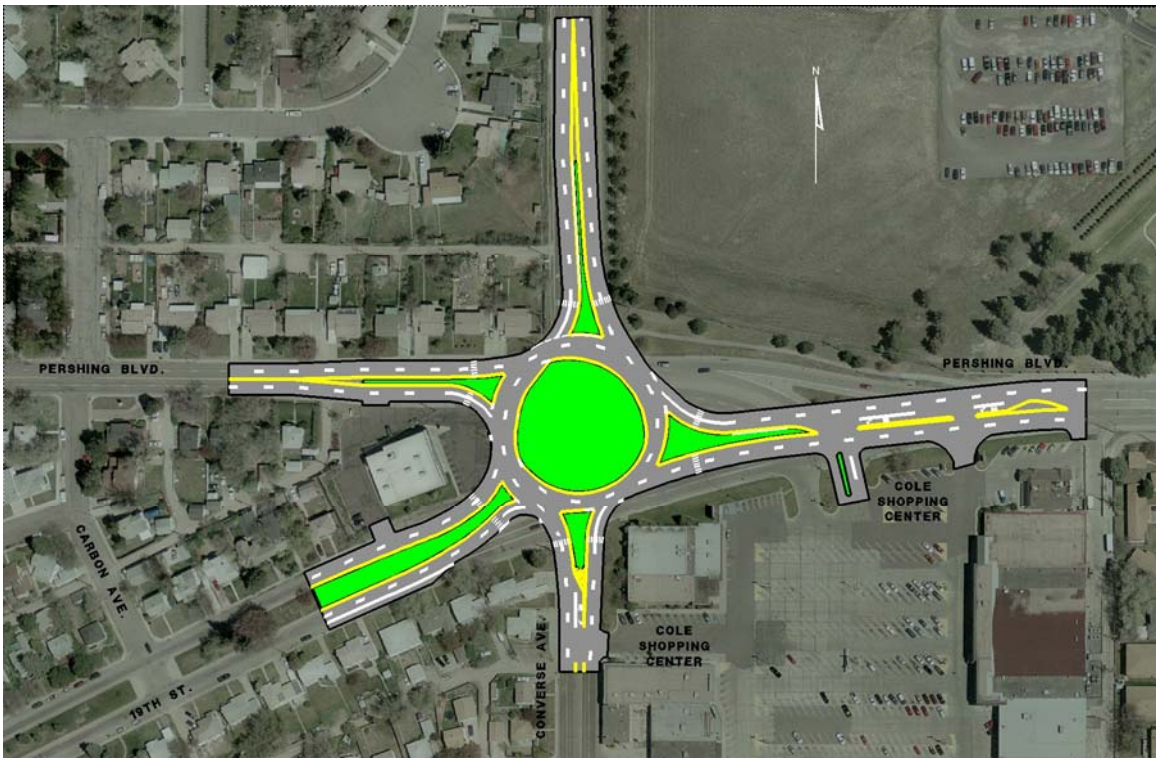


Figure 22 Alternative 6 – Modern Roundabout

Intersection Operation

Existing Intersection Operating Conditions:

During the existing morning peak hour, the intersection of Pershing Boulevard at Converse Avenue operates at acceptable levels of service except for the eastbound left turn. This movement operates at LOS 'D', which declines to LOS 'F' during the evening peak period, with vehicle queuing extending beyond the left turn lane blocking adjacent eastbound through lane traffic.

During the existing morning peak hour, the intersection of Pershing Boulevard at 19th Street operates at an acceptable level of service except for the eastbound left turn. This movement operates at LOS 'D', which declines to LOS 'F' during the evening peak period, with vehicle queues extending beyond the left turn lane blocking adjacent eastbound through lane traffic.

Finally, during the existing morning peak hour, the intersection of Converse Avenue at 19th Street operates at an acceptable level of service except for the eastbound left turn. This movement operates at LOS 'D', which declines to LOS 'F' during the evening peak period, with vehicle queues extending beyond the left turn lane blocking adjacent eastbound through lane traffic.

The following summarizes the LOS and queue results by traffic movement for each Improvement Alternative at the triangle of intersections at East Pershing Boulevard.

Future Year 2035 Conditions: With projected traffic growth at this intersection it is expected that the following traffic movements will operate below LOS F in the year 2035:

Pershing Boulevard/Converse Avenue

- Eastbound left turn
- Northbound and southbound through movements

19th Street/Converse Avenue

- Eastbound left turn

Pershing Boulevard/19th Street

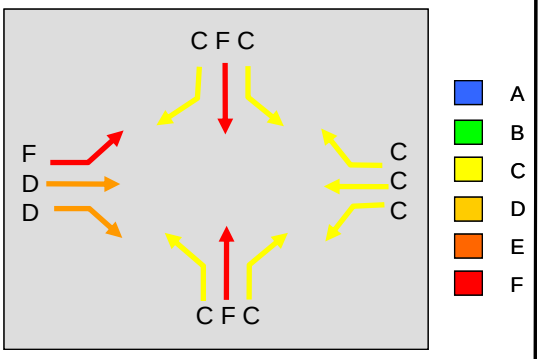
- Westbound right turn

By the year 2035, it is projected that vehicle queuing during the evening peak hour will exceed the 90-foot spacing between the Converse Avenue intersections with Pershing Boulevard and 19th Street with maximum queues of 500 feet in the northbound direction and 200 feet in the southbound direction. Eastbound 19th Street traffic is also expected to exceed the existing 230-foot spacing between Converse Avenue and Pershing Boulevard with a peak hour queue of 250 feet.

Pershing Blvd at Converse Ave

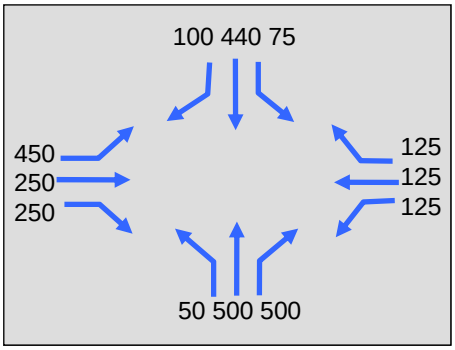
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

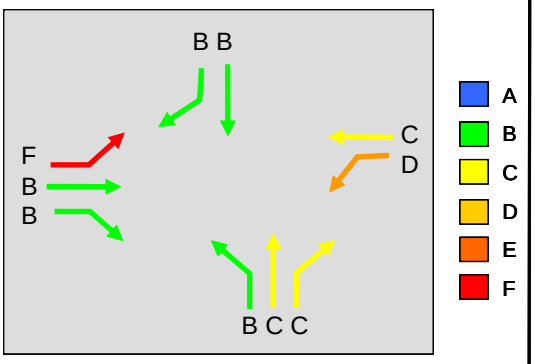
2035 PM Peak Traffic Volumes



19th Street at Converse Ave

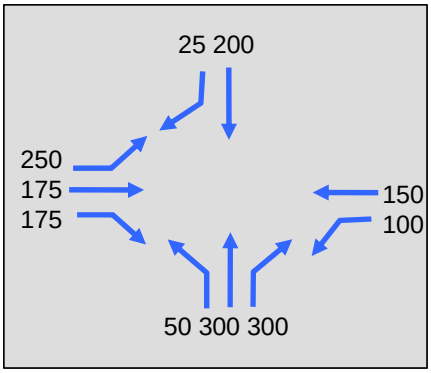
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

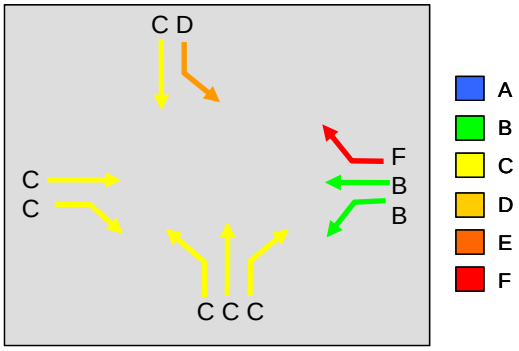
2035 PM Peak Traffic Volumes



Pershing Blvd at 19th Street

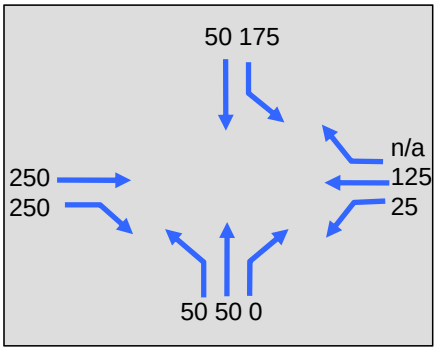
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



Improvement Alternative 1 – Existing Conditions with Optimized Traffic Signal Timing

A balance of delay within the three intersections was analyzed resulting in the following movements operating at LOS E or F in the year 2035:

Pershing Boulevard/Converse Avenue

- Eastbound left and through movements
- Northbound approach movements
- Southbound through and left turn movements

19th Street/Converse Avenue

- Eastbound left turn

Pershing Boulevard/19th Street

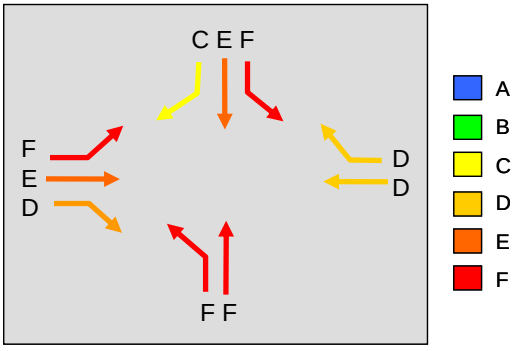
- Westbound right turn

By the year 2035, it is projected that vehicle queuing during the evening peak hour will exceed the 90-foot spacing between the Converse Avenue intersections with Pershing Boulevard and 19th Street with maximum queues of 650 feet in the northbound direction and 375 feet in the southbound direction.

Pershing Blvd at Converse Ave

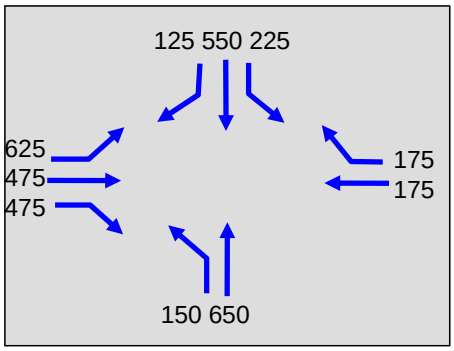
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

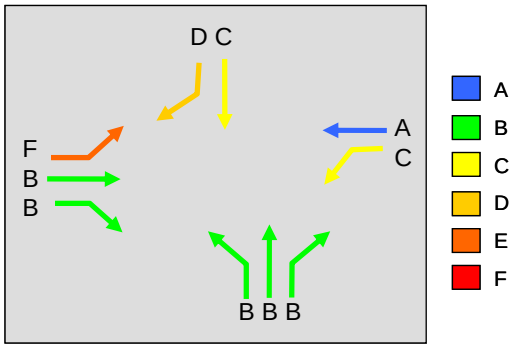
2035 PM Peak Traffic Volumes



19th Street at Converse Ave

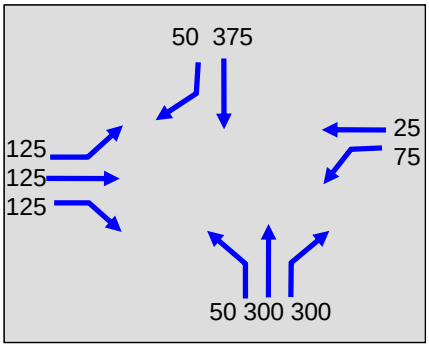
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

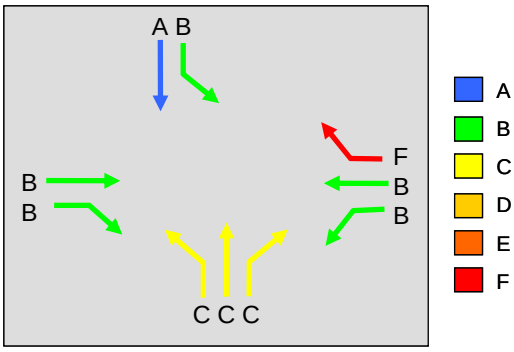
2035 PM Peak Traffic Volumes



Pershing Blvd at 19th Street

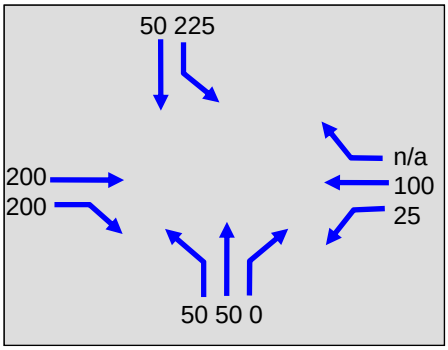
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



Alternative 2 – Geometric Improvements with Optimized Phasing and Timing

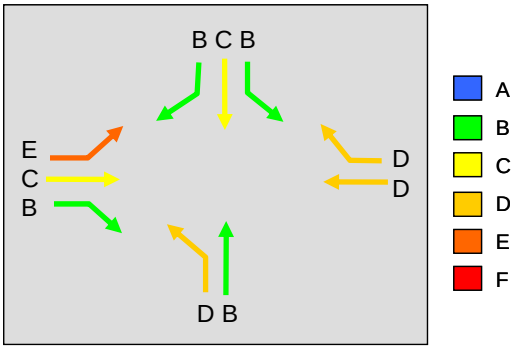
Alternative 2 involves the same basic geometric intersection design as the existing conditions with the construction of additional traffic lanes. This alternative is expected to provide an improved level of service with almost all movements operating at LOS D or better except for the eastbound left turn at the Pershing Boulevard intersection with Converse Avenue which is expected to operate at LOS E.

By the year 2035, it is projected that vehicle queuing during the evening peak hour will exceed the 230-foot spacing between the 19th Street intersections with Pershing Boulevard and Converse Avenue with maximum queues of 275 feet in the eastbound direction.

Pershing Blvd at Converse Ave

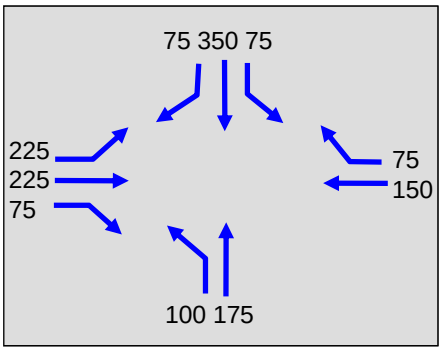
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

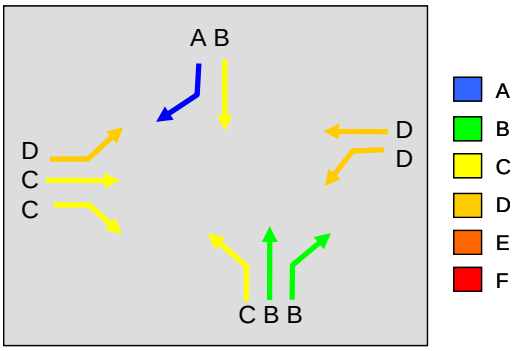
2035 PM Peak Traffic Volumes



19th Street at Converse Ave

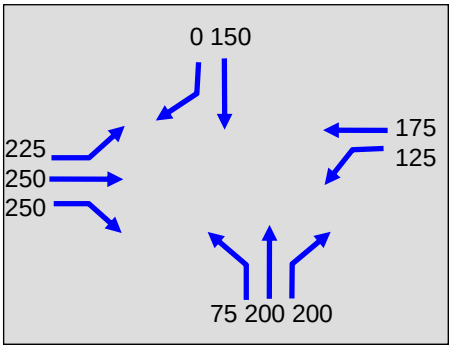
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

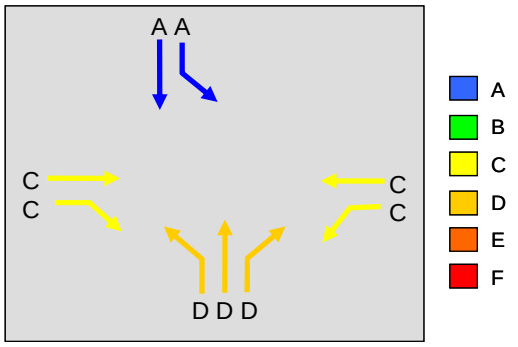
2035 PM Peak Traffic Volumes



Pershing Blvd at 19th Street

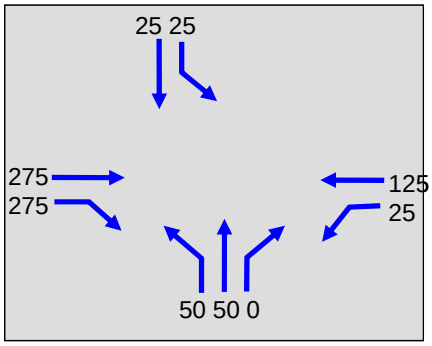
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



Alternative 3 – One Way 19th Street

Alternative 3 involves the restriction of the segment of 19th Street between Converse Avenue and Pershing Boulevard to one-way eastbound traffic. Westbound traffic would be required to continue on Pershing Boulevard and either turn left at Converse Avenue or continue through and turn left at Carbon Avenue. Under this alternative the following traffic movements would operate at LOS E or F in the year 2035:

Pershing Boulevard/Converse Avenue

- Eastbound through and left turn movements
- Northbound approach movements
- Westbound left turn
- Southbound through and left turn movements

19th Street/Converse Avenue

- Northbound left turn

Pershing Boulevard/19th Street

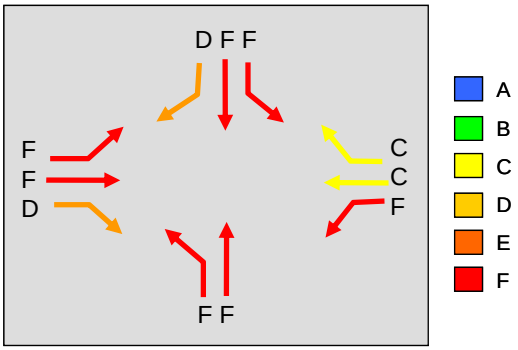
- Westbound left turn

By the year 2035, it is projected that vehicle queuing during the evening peak hour will exceed the 90-foot spacing between the Converse Avenue intersections with Pershing Boulevard and 19th Street with maximum queues of 775 feet in the northbound direction and 100 feet in the southbound direction. Eastbound 19th Street traffic is also expected to exceed the existing 230-foot spacing between Converse Avenue and Pershing Boulevard with a peak hour queue of 375 feet. The Eastbound queue on Pershing Boulevard approach to Converse Avenue is projected to be 725 feet which will exceed the 650 foot spacing between Converse Avenue and Carbon Avenue.

Pershing Blvd at Converse Ave

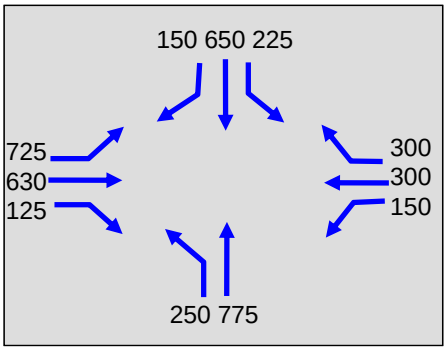
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

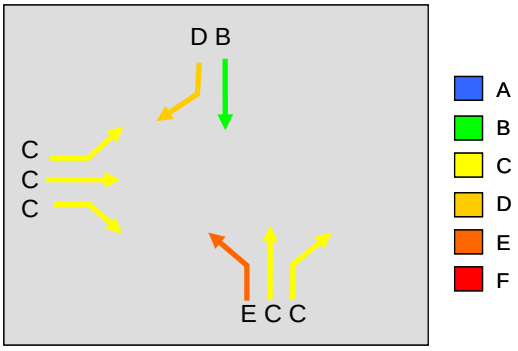
2035 PM Peak Traffic Volumes



19th Street at Converse Ave

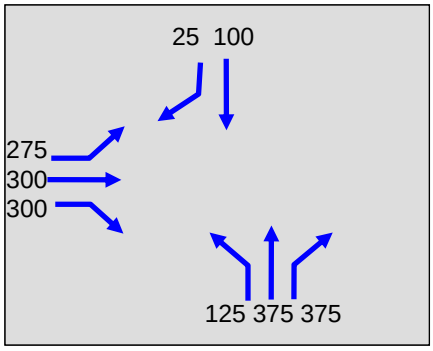
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

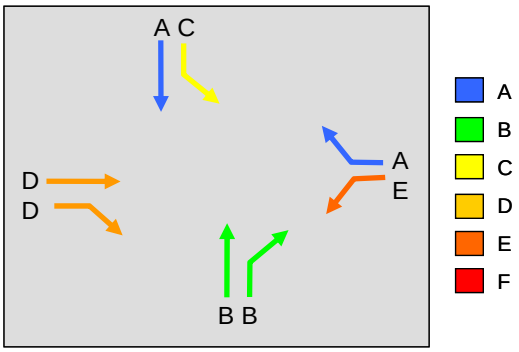
2035 PM Peak Traffic Volumes



Pershing Blvd at 19th Street

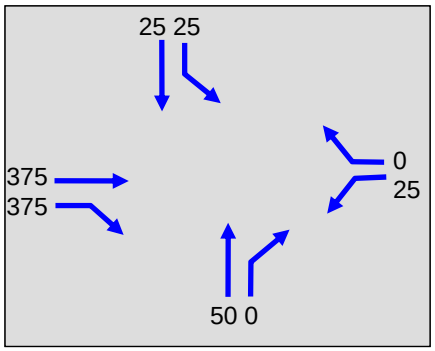
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



Alternative 4 – Carbon Avenue with One Way 19th Street

Alternative 4 involves the restriction of the segment of 19th Street between Converse Avenue and Pershing Boulevard to one-way eastbound traffic redirecting westbound traffic through Converse Avenue and later taking a left turn at Carbon Avenue. The following movements, under this alternative, would operate at LOS E or worse in the year 2035:

Pershing Boulevard at Converse Ave

- Eastbound, northbound and southbound left turn movements
- Westbound approach movements

19th Street at Converse Avenue

- Eastbound left turn

Pershing Boulevard at 19th Street

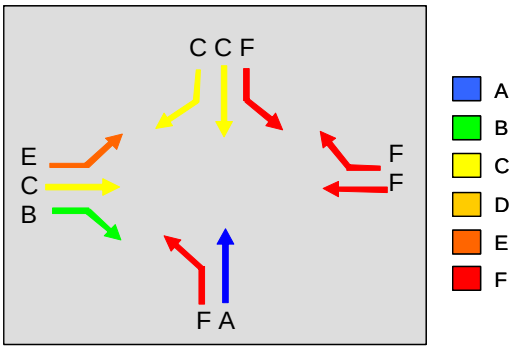
- Eastbound approach movements
- Southbound left turn

By the year 2035, it is projected that vehicle queuing during the evening peak hour will exceed the 250-foot spacing between the Pershing Boulevard intersection with Converse Avenue and 19th Street with an eastbound queue of 375 feet. Eastbound 19th Street traffic is also expected to exceed the existing 230-foot spacing between Converse Avenue and Pershing Boulevard with a peak hour queue of 355 feet. It is also expected that the eastbound queue on Pershing Boulevard at its approach to Carbon Avenue will reach a length of 675 feet.

Pershing Blvd at Converse Ave

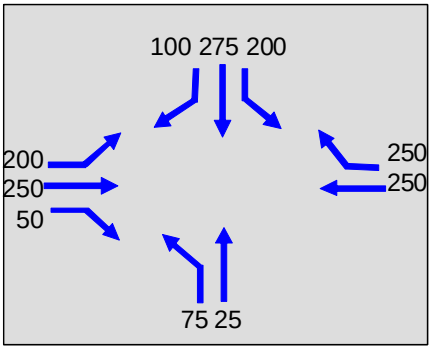
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

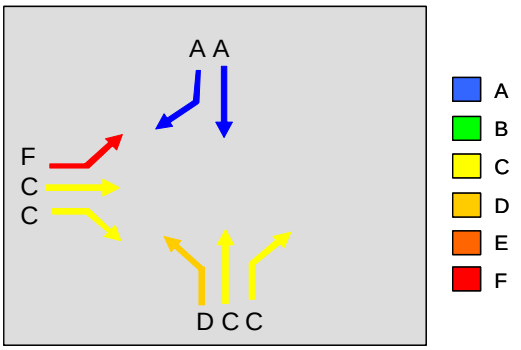
2035 PM Peak Traffic Volumes



19TH Street at Converse Ave

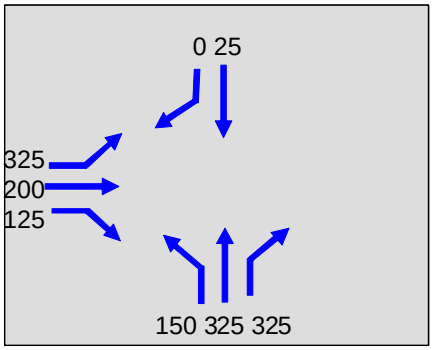
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

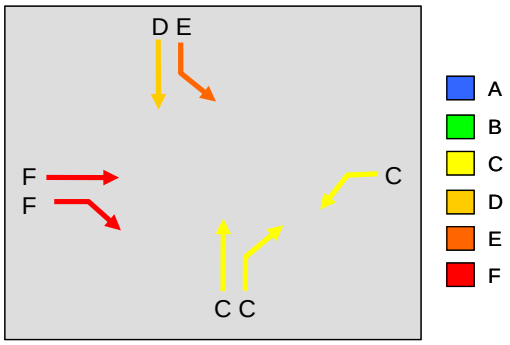
2035 PM Peak Traffic Volumes



Pershing Blvd at 19th Street

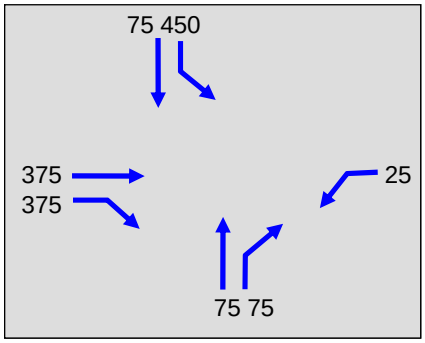
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes

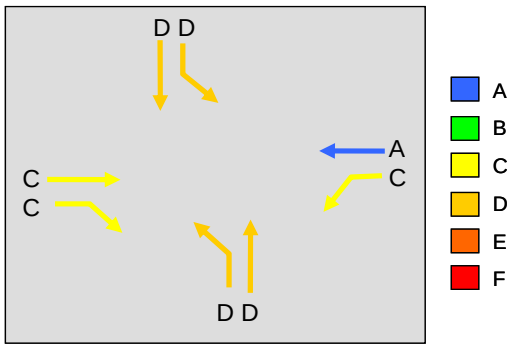


Pershing Boulevard at Carbon Avenue: Under this improvement alternative, the Pershing Boulevard intersection with Carbon Road with geometric improvements and the installation of traffic signals is expected to operate with all movements at Level of Service D or better.

Pershing Blvd at Carbon Ave

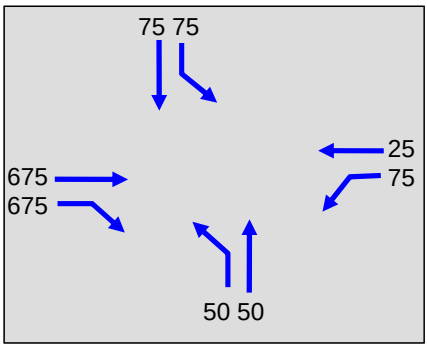
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



Alternative 5 – 19th Street Closure

Improvement alternative 5 involves elimination of the intersection of the 19th Street approaches to Converse Avenue. Traffic traveling on 19th Street eastbound will have to turn left at Carbon Avenue proceeding to Pershing Boulevard, where they will make a right turn to continue their route. Traffic traveling westbound at the existing Pershing Boulevard at 19th Intersection will have to remain on Pershing Boulevard proceeding through Converse Avenue intersection until Carbon Avenue intersection where they will make a left turn to get back into 19th Street. The movements listed below are expected to operate at LOS E or F in the year 2035 under this alternative:

Pershing Boulevard at Converse Avenue

- Eastbound through and left turn movements
- Southbound through and right turn movements
- Westbound left turn
- Northbound left and right turn movements

Pershing Boulevard at Carbon Avenue

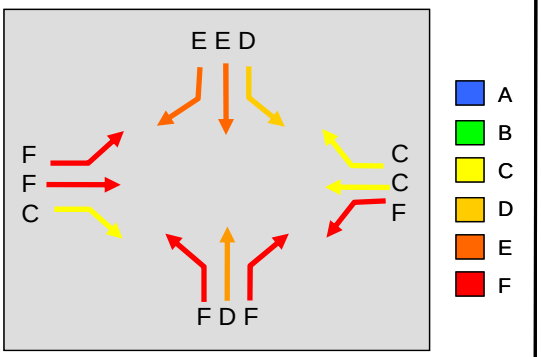
- Northbound through and left turn movements
- Southbound approach movements

By the year 2035, it is projected that vehicle queuing during the evening peak hour will exceed the 650 foot spacing between the Pershing Boulevard intersections Converse Avenue and Carbon Avenue with a maximum queue of 700 feet in the eastbound direction. Eastbound Pershing Boulevard traffic is also expected to extend a distance of 900 feet on the eastbound approach to Carbon Avenue.

Pershing Blvd at Converse Ave

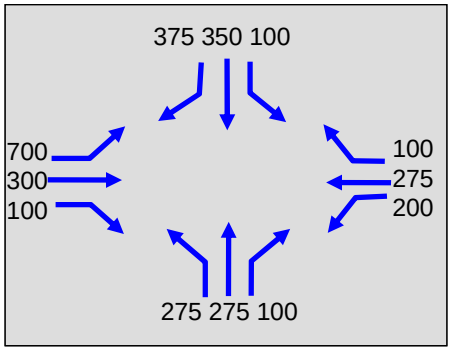
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

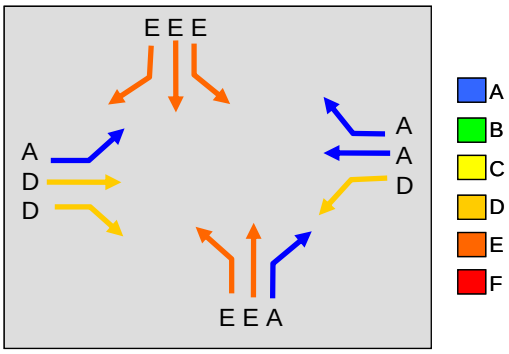
2035 PM Peak Traffic Volumes



Pershing Blvd at Carbon Ave

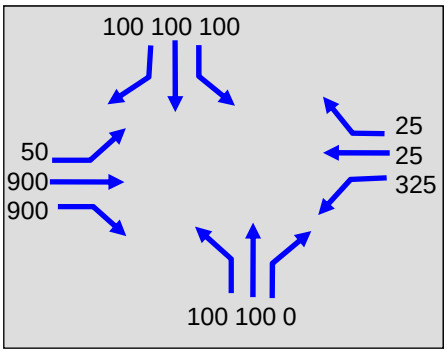
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

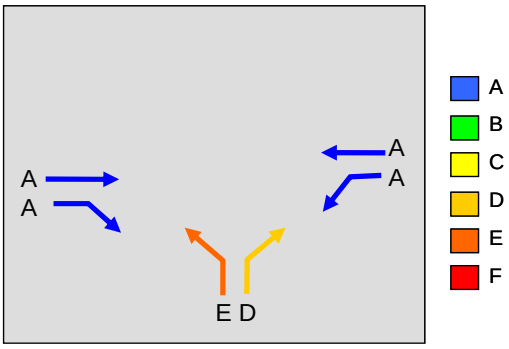
2035 PM Peak Traffic Volumes



Pershing Blvd at Cole Shopping Center Driveway

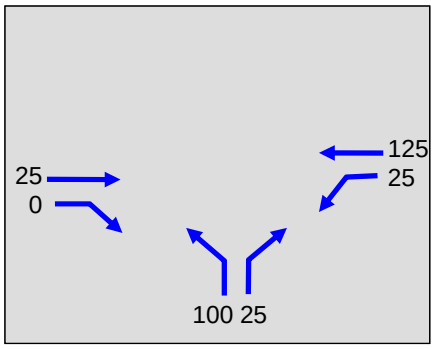
Level of Service Operation

2035 PM Peak Traffic Volumes



Queue Length (feet)

2035 PM Peak Traffic Volumes



Alternative 6 – Modern Roundabout

As shown in Figure 11, the projected circulatory flow at a Pershing Boulevard roundabout reaches a maximum volume during the evening peak hour with 3,260 vehicles. This can be directly related to Exhibit 4-4 of the FHWA publication, *Roundabouts: An Informational Guide.* The circulatory flow of a dual lane roundabout has a linear relationship to the maximum volume entering the roundabout.

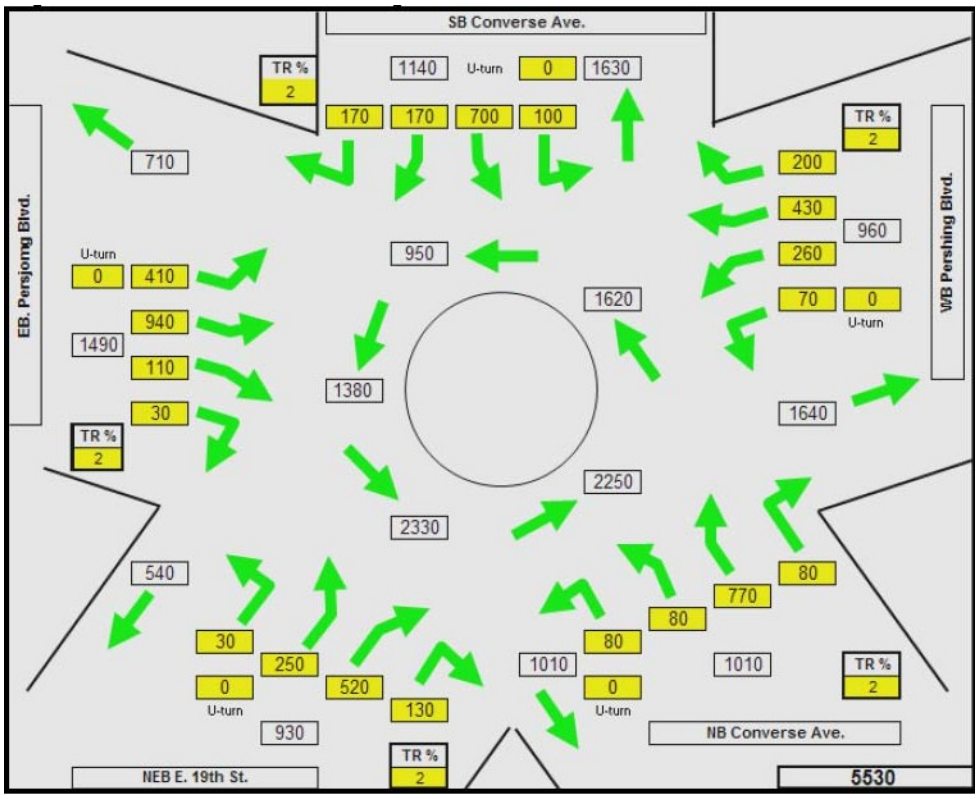


Figure 23 2035 Evening Peak Period Traffic Projection

Bypass lanes are often considered in roundabout design to reduce the number of vehicles required to enter the circular flow in a roundabout. This design refinement reduces the delay for right turns as well as the circulating traffic. However, at this intersection, the right turn movements between adjacent streets does not warrant a right turn bypass lane. When a right turning movement is between 300 and 400 vehicles per hour, a bypass lane is considered. The highest projected 2035 right turn traffic volume is 200 vehicles on the westbound approach of Pershing Boulevard. It is noted that bypass lanes are not considered a safe design treatment at intersections with pedestrian crossing activity.

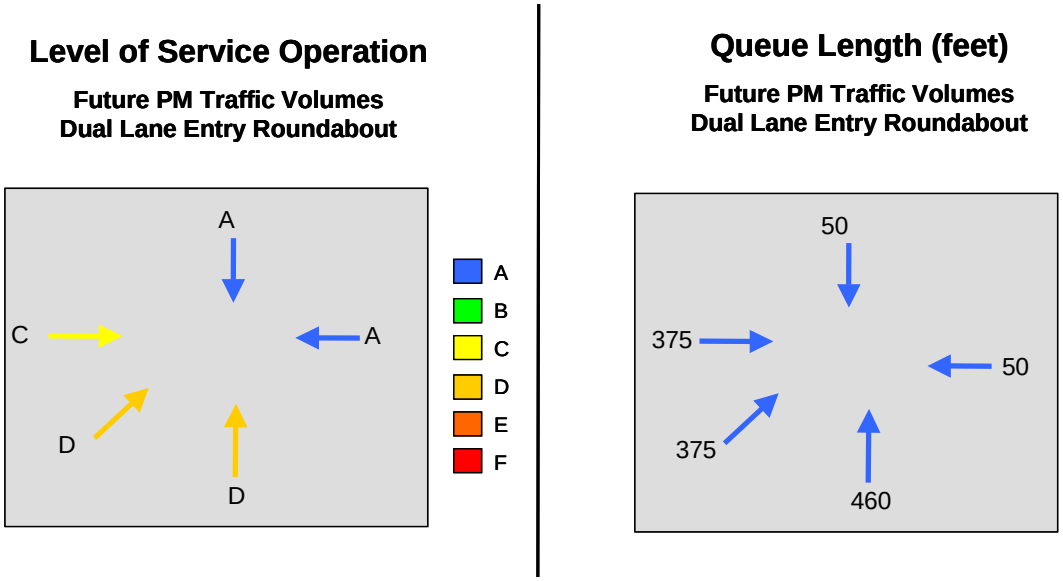
The RODEL 1.9.7 software program was used to evaluate intersection capacity operation with the general geometric parameters for a multi-lane modern roundabout. Several geometric designs were analyzed with the 2035 traffic volume projections. The 50th percentile confidence level (CL) was used in the RODEL capacity analysis to represent the most probable capacity of the roundabout, and to be consistent with confidence levels inherent in typical signalized and unsignalized capacity analysis methodologies. Similarly, average delay, as opposed to

maximum delay, was used to be consistent with signalized and unsignalized analysis methodologies.

The initial roundabout layout of the intersection includes two-lane entries constructed to accommodate expansion to three-lane entries in the future as traffic volumes increase. The operational analysis indicates that a two-lane roundabout would operate at LOS 'D' or better. When LOS operation falls below LOS 'D', construction of a three-lane entry on the west approach (Pershing Boulevard), the 19th street approach and the south approach (Converse Avenue) will provide additional needed capacity. A three-lane entry at those locations provide LOS 'B' or better for all movements within the roundabout.

Queuing on the approaches to the modern roundabout are expected to reach a maximum length of 460 feet on the northbound approach of Pershing Boulevard with all other queues expected to be no longer during the evening peak traffic hour.

Pershing Blvd/Converse Ave/19th St



Access

Under all improvement alternatives driveway access changes are limited. The Cole Shopping Center driveway is modified from its existing typical street width to a more standard driveway width with a single entrance lane and a separate left turn and right turn exit lane.

Safety

Alternative 1: This improvement alternative with updated signal timings is likely to have minimal impacts on further enhancing safety.

Alternative 2: This improvement alternative with updated signal timings and intersection approach capacity lane additions is expected to reduce crashes at the intersection network by approximately 22 percent.

Alternative 3: This improvement alternative with traffic on 19th Street restricted to eastbound one-way movement between Converse Avenue and Pershing Boulevard is expected to reduce crashes at the intersection network by approximately 25 percent.

Alternative 4: This improvement alternative with an eastbound one-way street segment for 19th Street between Converse Avenue and Pershing Boulevard and improvements to Carbon Avenue with new traffic signals at the intersection of Carbon Avenue with Pershing Boulevard is expected to reduce crashes at the intersection network by approximately 30 percent.

Alternative 5: This improvement alternative, which eliminates the east and westbound approaches to Converse Avenue at its existing intersection with 19th Street, is expected to reduce crashes at the intersection network by approximately 35 percent.

Alternative 6: Modern roundabouts prevent and reduce the severity of intersection collisions by reducing the number of conflict points from 32 to 8 at a typical four-leg intersection and controlling intersection entry speeds. According to the Federal Highway Administration (FHWA), roundabout control:

1 Reduces pedestrian collisions by 30-40%
2 Reduces vehicle injury crashes by 76%
3 Reduces vehicle fatalities by up to 90%

The improved safety of a roundabout is accomplished by maintaining lower speeds through the intersection and eliminating right angle traffic conflicts. Roundabouts also increase intersection capacity by maintaining even traffic flow of slow merging traffic movements without interruptions required by traffic signal red light stop indications. The overall reduction in crashes under this improvement alternative is expected be 67 percent.

Pedestrian / Bicycle Issues

Each of the intersection improvement alternatives includes enhanced pedestrian crossing pavement markings; signal-phasing improvements, pedestrian count down timers and construction of ADA wheel chair compliant ramps. Sidewalk width improvements on the Pershing Boulevard segments between intersections will also improve pedestrian movements in the corridor.

In additional to these pedestrian improvements roundabouts further enhance pedestrian activity by slowing traffic, reducing intersection conflicts from 32 locations to 8 eight locations, installation of pedestrian crossing signs, providing pedestrian refuge splitter islands and simplifying pedestrian crossing to one direction of traffic flow at a time without left turn movements conflicts.

Bicycle movements are provided by an off-street mid use path along the northern side of Pershing Boulevard. Considerations of enhanced signal timing and phasing can be applied o the corridor signalized intersections.

Build

Goals of the long-term improvement of the Pershing Boulevard are to:

- Improve corridor traffic and pedestrian safety
- Meet future traffic needs
- Create a street that serves as an asset to adjacent corridor development

Based on the above goals, comparisons of the benefits and impacts of improvement alternatives to meet the long-term needs of the Pershing Boulevard corridor and public comments received on the alternatives the following recommendations are made in this report:

Street Cross-Section

It is recommended to reconstruct Pershing Boulevard to a median divided four-lane roadway that would be narrowed east of Salem to minimize adjacent property impacts by eliminating the median. See Exhibits 11 and 13. New sidewalks would be constructed to a 6-foot width on the south side of E. Pershing and an 8-foot width on the north side of E. Pershing. When ever possible the sidewalks will be detached with a tree lawn separating the sidewalk from the road. In areas where right-of-way is limited a 2-foot paved buffer will be used to separate the sidewalk from through traffic lanes.

Intersection Improvements

Concord Road/Logan Avenue

This proposed improvement involves acquisition of right-of-way on the northeast corner of the intersection and razing of a portion of the existing school building to allow realignment of the intersection to a standard four-leg design. This improvement is expected to improve traffic flow, safety, reduce traffic queuing and enhance pedestrian crossing of the intersection. This improvement is consistent with the cross-section recommendation.

Salem Drive

It is recommended to reconstruct this intersection with minor widening to provide east and westbound left turn lanes. This improvement is expected to improve safety and traffic flow on Pershing Boulevard and is consistent with the cross-section recommendation.

Converse Avenue/19th Street

This intersection is recommended to be reconstructed as a two-lane roundabout to solve existing and future traffic safety and congestion problems. Crosswalks would be enhanced to improve existing pedestrian safety. Crosswalk enhancements include high visibility pavement markings, curb ramps, reduced crossing widths, median refuge areas, signing, and reduce traffic speeds. The design of this roundabout takes into account future expansion to a three-lane roundabout. The additional lane can be added to the center island and splitter islands. This way additional right-of-way will not be required to increase the roundabout capacity.

Site Furnishings – Kit of Parts

An integral part of improving the character and image of the East Pershing Boulevard corridor is to enhance and promote safe and comfortable environments for pedestrians. A key component of successful pedestrian environments are site furnishings that provide comfortable places for people, as well as create distinctive and memorable places that can be visited again and again. The kit of parts proposed for East Pershing includes bollards, pedestrian light fixtures, transit shelters, trash receptacles, tree grates, benches, and planters. These elements are proposed along the commercial sections of the corridor, primarily adjacent to the Carey Junior High School site and Shopping Center site. As the corridor redevelops over time, this family of furnishings can be incorporated within the street *RIGHT-OF-WAY*, creating a distinctive, attractive and welcoming environment for pedestrians and passersby.

Figure 24 Site Furnishings Kit-of-Parts

Phasing of Projects

It is intended for the East Pershing corridor to be designed and constructed separately from the Pershing/19th/Converse intersection. The project team feels, if the proposed improvements are constructed at separate times, the proposed modern roundabout at the Pershing/19th/Converse intersection be constructed first. The thought behind constructing the intersection first is two fold.

The first reason is due to safety. As it stands the Pershing/Converse intersection has the highest accident rate in the studied area. By reconstructing the Pershing/19th/Converse intersection with a modern roundabout, the crash rate is expected to be reduced by 67 percent.

The second reason to build the Pershing/19th/Converse intersection first is to allow time for Carey Junior High time to relocate. Carey Junior High is scheduled to be relocated near East High some time after 2012. If the school has been moved it allows for the possibility of relocating Concord Road to line up with Logan Avenue. This will reduce the crashes at the intersection with the second highest crash rate on the project area.

Due to its proximity to the Pershing/19th/Converse intersection Concord Avenue is the logical location to separate the projects. This allows ample room for construction of the splitter islands for the roundabout.

Appendix A

Potential Environmental Impact Analysis

POTENTIAL ENVIRONMENTAL IMPACTS ANALYSIS

EAST PERSHING BOULEVARD CORRIDOR
ROAD AND INTERSECTION DESIGN PROJECT
CHEYENNE, WYOMING

Terracon Project No. 24087002
April 20, 2009

Prepared for:

AYRES ASSOCIATES
214 W. LINCOLNWAY, SUITE 22
CHEYENNE, WY 82001

Prepared by:

Terracon
1505 Old Happy Jack Road
Cheyenne, Wyoming 82001-3300

Terracon

April 20, 2009

Terracon
Consulting Engineers & Scientists

Terracon Consultants, Inc.
1505 Old Happy Jack Road
Cheyenne, Wyoming 82001
Phone 307.632.9224
Fax 307.635.5756
www.terracon.com

Ayres Associates
214 W. Lincolnway, Suite 22
Cheyenne, WY 82001

Attention: Andrew C. Dana, P.E.

Re: Potential Environmental Impact Analysis
East Pershing Boulevard Corridor
Road and Intersection Design Project
Cheyenne, Wyoming
Terracon Project No. 24087002

Dear Mr. Dana:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit the attached Potential Environmental Impact Analysis for the East Pershing Boulevard Corridor Project. This document has been prepared in general accordance with Terracon's Proposal 2407E051, dated July 31, 2007, and with Federal Highway Administration Guidance Documents.

After your review, approval, and necessary modifications, this document will be submitted to the Cheyenne Metropolitan Planning Organization for their review.

If you have any questions or comments, please telephone either of the undersigned.

Sincerely,
Terracon Consultants, Inc.

Tim E. Post, P.G.
Environmental Geologist

FOR
Russell Pickering, MS
Senior Associate

Enclosure

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LIST OF APPENDICES

POTENTIAL ENVIRONMENTAL IMPACTS ANALYSIS
EAST PERSHING BOULEVARD CORRIDOR
ROAD AND INTERSECTION DESIGN PROJECT
CHEYENNE, WYOMING

Terracon Project No. 24087002
April 20, 2009

1.0 INTRODUCTION

The project is designed to revitalize the economic and physical conditions of East Pershing Boulevard between Dunn Avenue and Converse Avenue through landscape improvements, pedestrian-oriented enhancements, land use recommendations, and roadway improvements. A Preferred Alternative for the East Pershing Corridor has been presented to the public, the primary components of which are to:

- Create a pedestrian-oriented environment that is safe, visually pleasing, accessible and comfortable;
- Improve vehicular access and safety along the corridor to provide for residential uses along a primary arterial;
- Successfully accommodate snow removal and storage along the corridor; and
- Explore new economic potentials along the corridor.

A map of the East Pershing Corridor Plan Preferred Alternative proposed project area is included as Figure 1 in Appendix A. This document has been prepared in general accordance with Terracon's Proposal 2407E051, dated July 31, 2007, and with Federal Highway Administration Guidance Documents.

2.0 SCOPE OF WORK

Terracon Consultants, Inc. (Terracon), using guidance from the National Highway Administration, performed a review of the potential environmental impacts of the East Pershing Boulevard Corridor Project to determine if the Project can be categorically excluded under the National Environmental Policy Act (NEPA). The East Pershing Corridor Plan Preferred Alternative is the subject of this categorical exclusion analysis.

A categorical exclusion means a category of actions which do not individually or cumulatively have a significant effect on the human environment and therefore neither an environmental assessment nor an environmental impact statement is required. To determine if the Project can qualify for a categorical exclusion, or if an environmental assessment required, the following criteria are used to determine if a project qualifies for a categorical exclusion.

In accordance with 23 CFR 771.117(a), categorically excluded projects do not:

- induce significant impacts to planned growth or land use for the area;
- require the relocation of significant numbers of people;
- have a significant impact on natural, cultural, recreational, historic or other resource;
- involve significant air, noise, or water quality impacts;
- have significant impacts on travel patterns; and
- otherwise, either individually or cumulatively, have significant environmental impacts.

3.0 CATEGORICAL EXCLUSION ANALYSIS

3.1 Significant Impacts to Planned Growth or Land Use for the Area

The area surrounding the proposed project and the areas connected by East Pershing Boulevard are completely built out with residential housing, schools, and commercial areas. The Future Land Use Plan in the Cheyenne Area Master Plan identifies the future land use for the Project area to be a mix of urban residential and commercial business uses. The Project as proposed would not significantly impact either the Planned Growth or Land Use for the Area.

3.2 Relocation of Significant Numbers of People

The proposed project does not involve the relocation of a significant number of people. The modern traffic roundabout proposed for the junction of Converse Avenue, East 19th Street and Pershing Boulevard (see Figure 2) may affect the parking area of the commercial property just west of the proposed traffic circle which could, in turn, affect the residential property just west of the commercial property. However, it is yet to be determined if this currently-identified potential impact will actually impact residents.

3.3 Significant Impact on Natural, Cultural, Recreational, Historic, or Other Resource

No natural, cultural, recreational, historic, or other resources were identified within or adjacent to the project area. This was determined through examination of National Wetlands Maps, topographic maps to determine whether these resources were present in the Corridor area.

3.4 Significant Air, Noise, or Water-Quality Impacts

No significant air, noise, or water-quality impacts were identified within or adjacent to the project area. The Wyoming Department of Environmental Quality

-Air Quality Division confirmed that Cheyenne is not in a non-attainment area and since the project would not add significantly to the number of vehicles traversing the corridor, air quality impacts would not be significant. Similarly, since the project would not add significantly to the number of vehicles traversing the corridor, the project would not contribute to significant noise impacts. The Federal Emergency Management Agency Flood Insurance Rate Map was also examined to confirm the Corridor does not impact a 100-year flood plain. No streams or other water bodies cross the Corridor and provisions will be made to handle storm water run off; therefore, no water quality impacts have been identified.

3.5 Significant Impact on Travel Patterns

As proposed, the Preferred Alternative would not have a significant impact on the travel patterns. The project is designed to improve vehicular access and safety for residents along the corridor.

3.6 Otherwise, Either Individually or Cumulatively, Have Significant Environmental Impacts

Other factors considered in the analysis for a categorical exclusion are summarized in the following tables.

Socio-Economic	Present		Impacts	
	Yes	No	Yes	No
Disproportionate Impacts to Minority/Low Income Populations:	☐	☒	☐	☒
Existing or Planned Public Recreational Facilities Project was scoped to stakeholders representing the surrounding community. Comments received in response, did not report impacts to Existing or Planned Public Recreational Facilities.	☐	☒	☐	☒
Community Services Project was scoped to stakeholders representing the surrounding community. Comments received in response did not report impacts to Community Services.	☒	☐	☐	☒
Consistent with Local Land Use: The existing and proposed land-use remains a transportation facility within an urban setting.	☒	☐	☐	☒
Section 4(f) Evaluation: Use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites.	☐	☒	☐	☒

Cultural Resources	Present		Impacts	
	Yes	No	Yes	No
Historic properties:	☐	☒	☐	☒
Historic sites:	☐	☒	☐	☒
Archeological sites:	☐	☒	☐	☒

Natural Resources	Present		Impacts	
	Yes	No	Yes	No
Surface waters:	☐	☒	☐	☒
100-Year Floodplain	☐	☒	☐	☒
Wetlands	☐	☒	☐	☒
Natural Heritage Resources	☐	☒	☐	☒
Federal Threatened and Endangered species	☐	☒	☐	☒

Agricultural/Open Space	Present		Impacts	
	Yes	No	Yes	No
Open Space Easements	☐	☒	☐	☒
Agricultural/Forest Districts	☐	☒	☐	☒

Air Quality	Present		Impacts	
	Yes	No	Yes	No
Greater than 30,000 vehicles per day	☐	☒	☐	☒
Air Quality Study Attached	☐	☒	☐	☒

Unusual Circumstances (23 CFR 771.117(b)). Project does not include:

☒ Significant environmental impacts;
☒ Substantial controversy on environmental grounds;
☒ Significant impact on properties protected by section 4(f) of the DOT Act or section 106 of the National Historic Preservation Act; or
☒ Inconsistencies with Federal, State, or local law, requirement or administrative determination relating to the environmental aspects of the action

3.7 Standard Of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of regulatory agencies or other third parties supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed with Ayres Associates, our client.

4.0 SUMMARY AND CONCLUSIONS

The State highway administration (SHA) and the Federal Highway Administration (FHWA) has concurred in advance with the classification of those types of Categorical Exclusions, identified in 23 CFR Part 771.117(d) with no environmental impacts. The SHA certifies that the conditions indicated in this blanket classification will be satisfied for the projects processed under this programmatic classification and approval process.

The following conditions will apply to those actions which qualify under 23 CFR 771.117(d) that are processed by the SHA under this programmatic approach. If one or more of the following conditions are not satisfied, separate environmental documentation which demonstrates that the specific conditions or criteria for the categorical exclusions are satisfied and that significant environmental impacts will not result, will be submitted to the FHWA to support the classification.

1. The action does not have significant environmental impacts as described in 23 CFR 771.117(a).
2. The action does not involve unusual circumstances as described in 23 CFR 771.117(b).
3. The action does not involve:
    - The acquisition of more than minor amounts of temporary or permanent strips of right-of-way for construction of such items as clear vision corners and grading. Such acquisitions will not require commercial or residential displacements.
    - The use of properties protected by Section 4(f) of the Department of Transportation Act (49 U.S.C. 303).
    - A determination of adverse effect by the State Historic Preservation Officer.
    - U.S. Coast Guard construction permits or U.S. Army Corps of Engineers Section 404 permits.

    * Note: Although a precise definition is not required, one State has defined a minor amount of right-of-way as not more than 10 percent of a parcel for parcels under 10 acres in size, 1 acre for parcels 10 to 100 acres in size and 1 percent of the parcel for parcels greater than 100 acres in size.

    - Work in wetlands.
    - Work encroaching on a regulatory floodway or work affecting the base floodplain (100-year flood) elevations of a water course or lake.
    - Construction in, across or adjacent to a river designated as a component or proposed for inclusion in the National System of Wild and Scenic Rivers published by the US Department of the Interior/US Department of Agriculture.

- Changes in access control.
- The use of a temporary road, detour or ramp closure unless the use of such facilities satisfy the following conditions:
  - Provisions are made for access by local traffic and so posted.
  - Through-traffic dependent business will not be adversely affected.
  - The detour or ramp closure, to the extent possible, will not interfere with local special events or festivals.
  - The temporary road, detour or ramp closure does not substantially change the environmental consequences of the action.
  - There is no substantial controversy associated with the temporary road, detour, or ramp closure.
- Known hazardous materials sites or previous land uses with potential for hazardous materials remains within the right-of-way.

4. The action conforms to the Air Quality Implementation Plan which is approved or promulgated by the Environmental Protection Agency in air quality non-attainment areas.
5. The action is consistent with the State's Coastal Zone Management Plan as determined by the appropriate State agency.
6. The action occurs in an area where there are no federally listed endangered or threatened species or critical habitat.

Based on this categorical exclusion analysis, the previously-listed conditions for a categorical exclusion are satisfied. Pursuant to the National Environmental Policy Act and other applicable federal environmental laws, regulations and executive orders the project is determined to be a categorical exclusion.

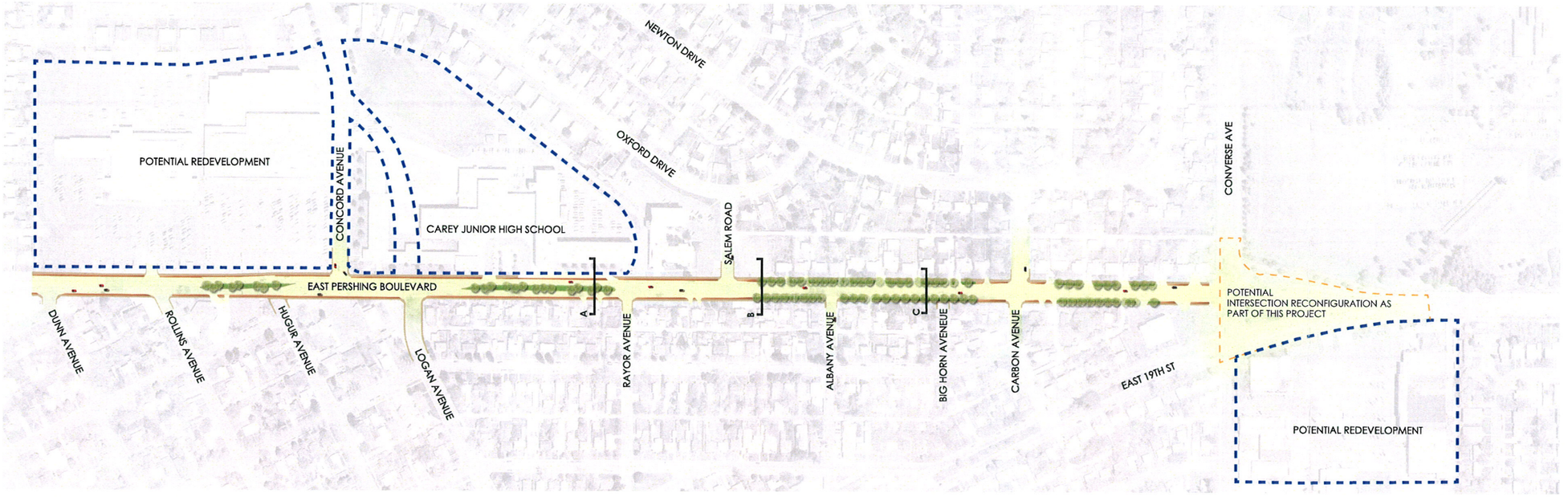
Prepared by: Tim E. Post

Title: Environmental Geologist

Signature: Tim E. Post

Date: 4/20/2009

EAST PERSHING BOULEVARD CORRIDOR AND INTERSECTION PLAN



The East Pershing Boulevard Corridor and Intersection Plan incorporated a thorough public involvement process to understand the opportunities and constraints along the corridor, and to develop trust among city officials and staff, business owners and community residents.

The goal of this plan is to revitalize the economic and physical conditions of East Pershing Boulevard between Dunn Avenue and Converse Avenue through landscape improvements, pedestrian-oriented enhancements, land use recommendations, and roadway improvements.

Primary purposes of the plan include:

1. Create a pedestrian oriented environment that is safe, visually pleasing, accessible and comfortable;
2. Improve vehicular access and safety along the corridor to provide for residential uses along a primary arterial;
3. Successfully accommodate snow removal and storage along the corridor;
4. Explore new economic potentials along the corridor.

N

Figure 1

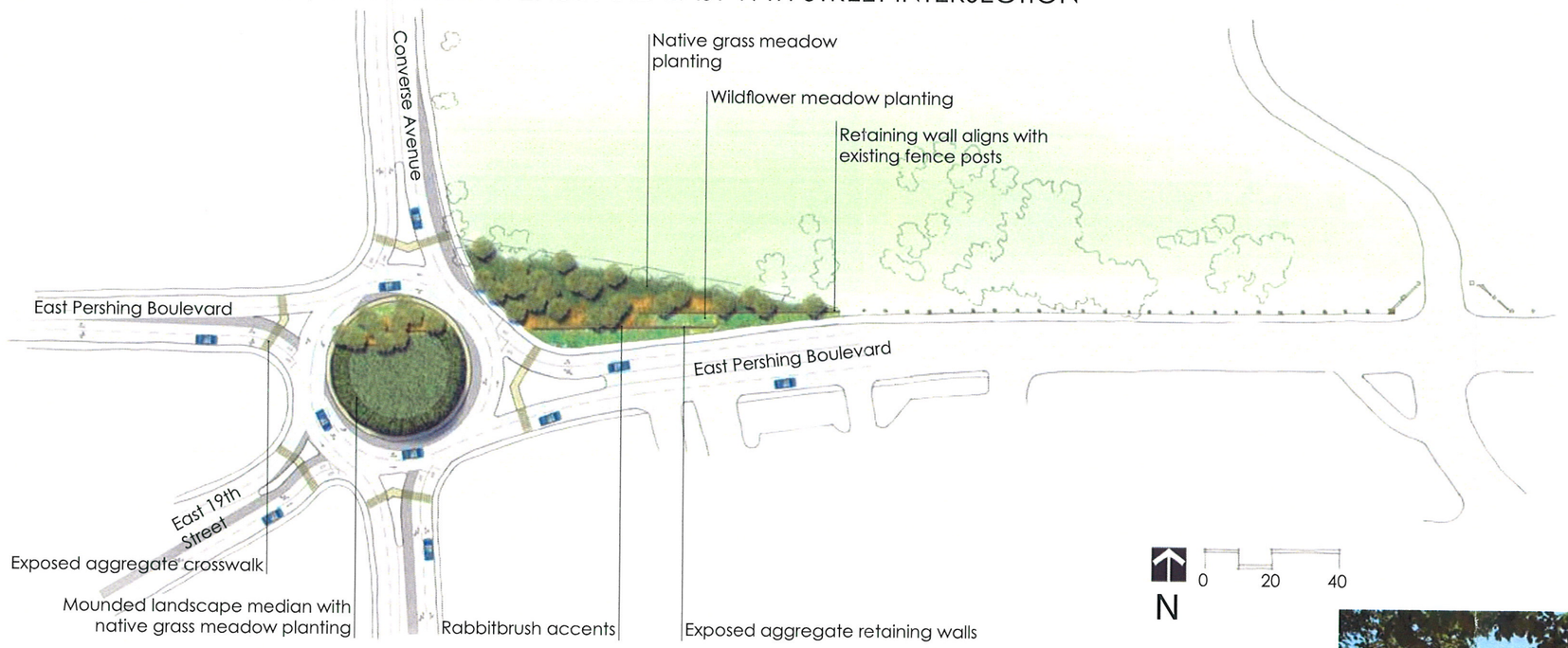
Native grass meadow.

Wildflower meadow.

Exposed aggregate crosswalks and retaining walls.

Rabbitbrush.

EAST PERSHING BOULEVARD, CONVERSE AVENUE AND EAST 19TH STREET INTERSECTION



Retaining wall.

FIGURE 2

Appendix B

Notes From Corridor Walk

EDAW Inc
240 East Mountain Avenue, Fort Collins, Colorado 80524
T 970.484.6073 F 970.484.8518 www.edaw.com

Memorandum

Date: May 06, 2008

To: Andy Dana, Ayres Associates

From: Kurt Friesen

Subject: May 03, 2008 Corridor Walk Notes

Comments Summary

Most residents that we spoke with had many of the same comments. These included:

- Residents would like the City to do something about snow removal strategy, as currently salt, gravel, & debris piles onto front yards and kills planting areas & turf.
- Most residents seemed accepting of the idea to provide a detached walk located within the existing ROW.
- Most residents did not like the idea of traffic moving closer to their homes if Pershing is widened.
- Many residents would like to keep the parking located in the front of their homes, but seemed open to considering alley access.

North Side of Pershing Boulevard

Home located directly across from church

- Traffic stacks up along Pershing west of school as cars wait to get into school drop-off area.
- Detached walk is a good idea
- Would like to have a place to park car in front
- Paving the alley is a good idea

1960 Pershing – Ritts

- Salt and gravel residue from Pershing snow removal destroys lawn
- Concerned about losing driveway access

1972 Pershing – Barbara Manning

- Has lived in house since 1970
- Snow and water often splash up to front door and face of house when street is being cleared
- Does not approve of widening the road – extra lane not needed.
- Prefers no alley access
- Loves tree in front yard – has sentimental value. Would like us to save if possible

EDAW Inc
240 East Mountain Avenue, Fort Collins, Colorado 80524
T 970.484.6073 F 970.484.8518 www.edaw.com

2212 Pershing

- Would like City to repair grass damaged from snow removal
- Moved here from Florida – hasn't lived here long
- Son will take care of property & make decisions about home
- Seemed indifferent to widening efforts

South Side of Pershing Boulevard

1835 & 1831 Pershing (homes with steep retaining walls). Jerry, Dean & Chris

- Would like to see parking stay in front of home, primarily for guests. Homeowners typically park in rear. Current parking allows cars to pull in and then drive through, which allows safer entrance/exit onto Pershing.
- Safety of kids is a big concern. Lower terrace wall located within ROW creates a buffer between road and front yard to catch stray balls or toys. If new wall is constructed, homeowner would like to have something that promotes safety for kids playing in yard
- Detached walk along Pershing is a good idea
- Several people have driven into their wall
- Homeowners would consider selling if needed
- A turn lane is needed at Salem intersection – current condition is unsafe
- Reconfiguration of existing stair will be required if new all is constructed. This will require a different configuration than currently exists in order to make it work correctly.

2216 Carbon. Cody

- Might prefer a fence along Pershing ROW
- Existing sidewalk is completely gone here
- Would like to see existing trees stay
- Concerned that mapped ROW encroaches onto private property. Was surprised to see how far ROW extends into private property
- Existing catch basin at Carbon & Pershing often is plugged during storm events, causing flooding.
- Doesn't like people parking in front of home who are visiting adjacent business at Carbon & Pershing intersection

Appendix C

Notes From First Public Open House

EDAW Inc
240 East Mountain Avenue, Fort Collins, Colorado 80524
T 970.484.6073 F 970.484.8518 www.edaw.com

Memorandum

Date:	May 30, 2008
To:	Andy Dana, Project Manager - Ayres Associates
	Nancy Olson, Project Manager - Cheyenne MPO
From:	Kurt Friesen, Senior Associate - EDAW
Subject:	**May 20, 2008 East Pershing Boulevard Open House Comment Summary**

On May 20, an open house was held in Carey Junior High School for the purpose of presenting and reviewing the project progress for the East Pershing Boulevard Improvements project. The project team presented a series of exhibits, including the following:

- A Project Overview, which outlined the project history, goals and funding mechanisms
- An Opportunities and Constraints exhibit, which illustrated opportunities and constraints for consideration along the entire length of the corridor
- Alternatives 1,2,&3, which illustrated three distinct approaches to the design of the corridor.
    - Alternative 1 provided 4 traffic lanes and left turn lanes at key intersections
    - Alternative 2 provided 4 traffic lanes plus a continuous center turn lane
    - Alternative 3 provided 4 traffic lanes and a center median
- A potential re-alignment of Concord & Logan at the Concord/Logan/East Pershing intersection.

Approximately 30 people from the community attended the Open House. Attendees were asked to comment on the displayed exhibits, as well as to complete a questionnaire regarding the corridor improvements. Several attendees elected to take the questionnaire home to fill it out and then mail it back to the project team. Based upon comments about the alternatives, one-on-one discussions with individuals, and responses collected in the questionnaire, there were six concerns that were consistently expressed:

1. *Keep driveways and garages accessible.*
2. *Add continuous left turn lanes along Pershing.*
3. *Move the parent and bus drop-offs for Carey Junior High to the back to eliminate congestion and increase safety.*
4. *Widen and / or buffer sidewalks for pedestrian use and safety, especially when "removed" snow is put on sidewalks.*
5. *Find a better way to control speeds on Pershing.*
6. *Improve intersections, especially at Carbon/Pershing, Converse/Pershing, and Concord/Logan/Pershing*.

The attached documents summarize the comments collected at the open house, and are provided for your review.

East Pershing Boulevard Public Open House #1 Comment Summary
April 22, 2008
Carey Junior High School

Opportunity & Constraints Analysis

Opportunity or Constraint	Comment
Sloping roadway and shallow sight distance makes access from driveways challenging and dangerous	Residents should be responsible for their property by trimming bushes and trees
Snow removal along East Pershing damages resident's front yards and creates problems for snow removal on the sidewalks	Very true! Plow to middle and remove. Consider materials when you are planning the buffer between the street and sidewalk. Gravel?
Carbon Avenue is a dangerous intersection, and is also subject to flooding	Yes, there are accidents in this area
A dedicated bike lane is needed along East Pershing to create a safe condition for bikers	Great idea! Instead of a bike path on Pershing, build the bike path on Converse Avenue and tie it to the greenway.
Many residents have seen or experienced rear-end accidents when attempting to enter or exit East Pershing from their driveway	Just be careful. This is not a resident concern.
Roadway edge offset at Rayor Street intersection creates unsafe condition for vehicles traveling east on East Pershing	Widen the portion of Pershing that needs to be widened, Dunn to Rayor is wider than Rayor to Converse. Can we work with the portion that is already wider?
Parking in front driveways creates unsafe conditions when backing into East Pershing	Agree that not all driveways on Pershing are long enough to accommodate parking. Don't take away access to those driveways that are long enough.
Most residents prefer that East Pershing improvements do not require moving the roadway closer to their homes unless there was adequate compensation for relocation. Some residents do not want to relocate.	There is a concern about necessary money needed for private property changes required for alternate access and other issues
Existing alleys provide access to rear of lots for parking. There is an opportunity for alleys to be paved as part of an improvement strategy.	There is a concern over more traffic in alleys because children use them a lot. Front yards are not safe for kids.
East Pershing & Logan intersection	Move light pole to increase right turn ability from Logan
East Pershing & Logan alley	There is a concern about alley access with parking and service vehicles
East Pershing & Rayor intersection	No alternative access possible
An opportunity exists to provide raised medians with trees and plantings where a center turn lane is not needed	Funtionality needs to take priority over aesthetics. Along Pershing there is not a place where a turn lane is not needed because of the number of residences. **This is a residential area.**
East Pershing & Dunn intersection	Existing improvements already falling apart. How will this project avoid same mistake?
East Pershing & Rollins intersection	Hill has to be considered when turning into Cheyenne Business Center.
Funding Mechanism for roadway construction, including .East Pershing, Converse, & 19th Street intersections	Consider asphalt/rubber combination for the road. Lasts longer and also green-friendly Buy asphalt/concrete and fuel futures to hedge price increases over next few years. Need strategic fiscal planning.

East Pershing Boulevard Public Open House #1 Comment Summary
April 22, 2008
Carey Junior High School

Alternative 1 Comments

Location	Comment
Carey Junior High School	Close the Carey School drop-off lane access from Pershing. Instead, move drop-off to the east or west sides of the school. Drop-offs are a traffic hazard during the school year.
Intersection of Salem & East Pershing	Remove the stoplight from Salem & Pershing. This intersection is a hazard in winter with snow and ice on road/hill.
Steep Slope along East Pershing	Cut hill curvature down, allowing more line of sight for cars to stop when traffic is stopped at Converse, or to see people turning in to driveways.
Intersection of East Pershing and Logan/Concord	Hoping for a configuration change of this intersection. Lots of close calls here.
Between Bighorn and Carbon Avenues along East Pershing	Need a wide enough sidewalk to accommodate 2-3 kids walking side by side

Alternative 2 Comments

Location	Comment
General	Need for crosswalks across East Pershing
General	There is a maintenance concern with tree lawns - snow, salt, gravel, etc. accumulate along roadway edge
General	2'-0" buffer not sufficient for accomodating snow removal
General	Concern over loss of driveway parking. Would have to park on Salem and walk across Pershing.
General	Homeowners like the turn lane access from Pershing
General	Center turn lane creates good buffer between east & westbound traffic
General	Consider piling snow in center lane rather than snowplow on to roadway edges.
General	How may kids ride bikes to school? Is a bike lane necessary?
General	Locate the bike path along Converse Avenue rather than Pershing
Business Center at Concord & East Pershing intersection	Eastbound left turn lane into the business center is dangerous and needs re-grading.
Carey Junior High School	Consider moving the drop-off and bus parking to the rear of the school
East Pershing and Salem intersection	Steep slope is dangerous in the winter (right turn onto Salem)
East Pershing and Rayor Avenue (school zone)	Need for school crosswalks
East Pershing & Converse intersection	Consider readjustment of right hand turn lane from eastbound Pershing to Converse.

Alternative 3 Comments

Location	Comment
General	Residents expressed concerned about losing front yards.
General	Concerned about homeowner maintenance of trees/lawns
General	Trees potential problem for visibility along Pershing
General	Snow removal could cause damage to trees/lawns.
General	How will we handle the garbage pickup on Pershing?
Alleys	Alley access not a good option for some residents
East Pershing & Hugur intersection	Church access from Huger
Carey Junior High School	Move parent drop-off to the back; keeping buses in front is okay
Carey Junior High School	Need to figure out how to smooth out vertical curve to improve sight distance
East 19th Street/ Converse Avenue & East Pershing intersection	Median is terrible for pedestrians at commercial building

East Pershing Boulevard Public Open House #1 Comment Summary
April 22, 2008
Carey Junior High School

Questionnaire for Property Owners and Concerned Citizens

Of the 22 responses received by May 30, 2008, 15 responses were from citizens who own property along the project.

What changes can we make to East Pershing Boulevard to improve your quality of life?

Response	*Number of similar responses*
Detached sidewalk with trees between the street and sidewalk	2
Slowing traffic	
Discontinue plowing snow to the sidewalk or move/widen the sidewalk	3
Widen sidewalks to create a safer walking/biking environment.	3
Turning lanes or a median for safety	
The curbs are in poor condition and need to be resurfaced	
Reconfiguration of Concord/Logan intersection - there are many close calls at this intersection	2
Widen driving lanes	2
Hollywood Video needs to improve landscape	
City needs to keep the streets clean of dirt and debris	
Regrade the hill at the Rollins/CBC entrance	
Enforce littering laws	
The road is in poor condition and needs to be resurfaced	2
Plant trees and shrubs to deaden traffic noise	
"The change will not improve our quality of life. We will lose a lot of our convenience."	
Eastbound turning on to Salem Road is dangerous because cars coming east cannot see turning vehicles	
Pave the alley	
Add a continuous left turn lane	
Our area is wide enough for a 5th lane at this time, why not just make it as such? Widening will only leave us with space to park only one car.	
Limit traffic noise from housing fronts	
Limit tractor trailer combos in noise levels, width and length.	
Limit truck routes and hours of service deliveries.	

East Pershing Boulevard Public Open House #1 Comment Summary
April 22, 2008
Carey Junior High School

When East Pershing is rebuilt, what would like to see improved?

Response	*Number of similar responses*
Better sidewalks, wider and separated from street like older neighborhoods	4
Widen street between Rayor and Converse	
Add turn lanes on Pershing	6
Move student drop-off at Carey to back	
Add sidewalk buffers between wall and road	
Move sidewalks off of the curb to assist with safety	3
Standardize lane widths to 12'	
Improved paving	2
Improved curbs and gutters	
Improved sidewalks	
Add new traffic lights at Concord and Logan	
Crosswalks at Carey Junior High	
Widest driving lanes possible	
Move bicycle traffic to 22nd	
Improve the Logan/Pershing intersection	
Improve the Converse/Pershing/19th intersection	
Improve access to residences	
Improve snow removal to respect residences	2
Improve traffic at intersections	
Improve traffic noise	
Improve safety	
Move sidewalks closer to Carey for student access	
Improve storm drains and water flow	
Easier access to Pershing from side streets (stoplights?)	
Establish different lanes of traffic flow depending on time of day; for example, 7-9am two lanes E-W with 1 turn lane, 4-6pm two lanes W-E with 1 turn lane. If necessary, use remotely controlled traffic signage.	

What problems do you have with traffic on E. Pershing Boulevard?

Response	*Number of similar responses*
People drive too fast	5
Congestion, especially during school hours	7
Dangerous in winter coming up the hill	
Cars hit the wall during the winter	
Cars end up on the sidewalk during the winter	
Hard to turn on Salem & Rayor	
Backing across the street	
Fire engines	
Limited curb and gutter	
Narrow and close sidewalks (unsafe)	2
high road crown	
Narrow lanes	
Parent drop off lane at Carey JH backs up on Pershing	2
Buses using the loop at Carey have problems getting back on to Pershing	
Congestion due to lack of turn lanes	
Intersection of Carbon/E. Pershing	
Intersection of Concord/Logan/Pershing	2
Intersection at Converse	
The only accidents I've seen are people not stopping at the light.	
Inability to pull out of driveways	3
Students running across the street	
There are ruts in the road, with pavement fills that don't last	
Traffic volume	2
Sidewalks are too close to the road	
If a car has trouble, there is no place to pull over	
Traffic noise	
Too much commercial traffic	

East Pershing Boulevard Public Open House #1 Comment Summary
April 22, 2008
Carey Junior High School

Would you like to see a landscaped, raised median or continuous left turn lane added when East Pershing is rebuilt?*

** (if answer was both, counted once each in Median and Left turn lane columns)*

Response	*Number of similar responses*
Median	7
Left turn lane	14
Don't know or blank	4

What improvements would you like to see for pedestrians and bicyclists?

Response	*Number of similar responses*
Bike lane	2
Sidewalk separated from the street	5
Bike path on Converse rather than Pershing	3
Landscaped median along sides	
Buffer	
Wider lanes	
Turn lanes	2
Do not put trees on sidewalk separation that would impede visibility	
No changes - plenty of sidewalk in front of this person's residence, but would like to see improvements to curb and gutter on Rayor	
Wider sidewalks	4
Better traffic flow	
Crosswalks	
Bicycles should not be allowed on Pershing	
Do not plow snow on to sidewalks	
Pedestrian controlled stoplight	

What improvements can be made to increase your safety?

Response	*Number of similar responses*
Crosswalks	
Sidewalk separated from street	2
None - This person does not feel unsafe on Pershing, and does walk on the sidewalks	
Move the student drop off from away Pershing	2
If road work is done, a retaining wall should be built (reinforced, and 4 foot taller) for safety	2
Continuous turn lanes	4
Wider lanes	2
Reconfiguration of Logan/Concord intersection	
Remove snow rather than berming in front of residences	
Don't move busy streets any closer to homes; it's already unsafe for children to play in front yards	
Wider sidewalks	3
Resident would like to keep option of parking in front of his home; it increases pedestrian safety.	
Eastbound turning on to Salem Road is dangerous because cars coming east cannot see turning vehicles	
Limit parking in front of commercial buildings	

Based on Alternatives 1, 2, and 3, which do you prefer and why?*

Alternative 1 - Out of 11 total responses, 2 chose this alternative.

Alternative 1 is best. It provides for both wider lanes and sidewalks. The sidewalks are also adjacent to the curb. Continuous turn lane and 12' lane widths.

Alternative 2 - Out of 11 total responses, 3 chose this alternative.

Alternative 2 without bike paths, without tree and grass dividers since the chemicals will destroy it.

Alternative 3 - Out of 11 total responses, 3 chose this alternative.

Separated sidewalks with trees & median

* 1 response was undecided between Alternative 1 and 3, since resident likes both and feels that landscaping is a nice touch
* 1 response was blank
* 1 response was none, since all three alternatives encroach in to a resident's yard, driveway, and limit access to garage.

East Pershing Boulevard Public Open House #1 Comment Summary
April 22, 2008
Carey Junior High School

General Comments

Pershing should be more like a street, less like a highway.

Thank you!

Safety for children in front yard if bushes are taken out. Stair from Pershing to front yard. Anything you can do about cars stuck and sliding going uphill on Pershing to Carey Jr. High in winter.

Absolutely NO calming islands

If you take away street/driveway access, you can buy my house.

Alley access is not an option for us! Our garage is attached, and parking in back is not wide enough.

Hugur is a key access, both entrance and exit, from our property. Closing Hugur is not a good option! Our driveway is also important for access onto our property for east bound customers.

If the reconfiguration of Concord/Logan Interchange does not happen with this project, the city/citizens may not want to tear up the recent construction later to do the reconfiguration. This and lane width are my highest concerns.

If you move access to the garages to the alleys, homeowners will have a very big expense, which shouldn't happen. I have two large trees in my backyard that would need to come down. With the economy the way it is, it's very hard now to keep your homes up.

We live on the corner of Pershing and Carbon. Exactly how far in would Pershing go and would there be any compensation if needed? I feel while under construction we'll be losing some of our parking rights, as we live across from a business. Would they be paying for trees or damage that may occur while trees are being cut down? Wanted to start building a fence, but not sure now.

4-feet lost from my front yard destroys the following: 1) all front yard landscaping near the street; 2) front yard retaining wall; 3) usefulness of my driveway; 4) usefulness of my attached garage; 5) planned sprinkler system; 6) current water hookup for the property to city water. If access to my driveway/garage is limited/restricted/removed, I will sue. If eminent domain is declared, I will sue. I have MS (multiple sclerosis) and am handicapped. You are looking at ADA issues if my needs are not addressed. I have no access to my backyard. The garage is attached, so "flipping" it will not work.

Paving the alley would help reduce the need for residents to park in front of their homes and the need to exit and enter Pershing. Separating the sidewalk from the street would be safer for pedestrians and eliminate snow removal from the street to be placed on the sidewalk.

Understand that vehicles going south on Converse and turning right onto Pershing will have a YIELD right turn. The homes on the north side of Pershing have front drives. This traffic should have to stop before proceeding, as these vehicles are not visible until they get on to Pershing and with a YIELD sign, they will be going much too fast to permit residents to back on to Pershing safely. There is also traffic headed north on Converse making left turns on to Pershing at the same time even though the east-west traffic has a red light. If a roundabout is still being considered for the intersection of Pershing and Converse, please keep in mind that emergency vehicles using Pershing daily, and also trucks pulling trailers, will have much difficulty with such a setup.

I feel losing my parking place in front will cause an inconvenience. We park in back of the house. If the alley is blocked, we have no way of parking in the back. So we park in the front. We would hate to lose this alternative parking place. Also, this would cause the sidewalk to be closer to the street. This would cause people to be near traffic. In winter, this would be a hazard to kids going to school and any other pedestrian. Safety wise, the sidewalk issue needs to be addressed as a major problem. Also, getting back to the parking in front, if we have a major snowstorm, our alley is blocked and we have no help from the city to remove it, we cannot get out. If we have guests, we have no place for them to park. They would have to park across the street and try to get across with traffic. Again, this could be a hazard to the guest.

Thank you so much for taking time to ask these questions and addresss the concerns of homeowners. I feel that you answered my questions already.

Appendix D

Notes From Second Open House

MEMORANDUM

AYRES ASSOCIATES

To: Nancy Olson, Project Manager – Cheyenne MPO

From: Andrew Dana, Project Manager – Ayres Associates

Date: February 17, 2009 Project No.: 32-1291.00

Re: East Pershing Second Open House

On January 13, 2009 the second open house for the East Pershing Boulevard Corridor and Intersection project was held in Carey Junior High School for the purpose of presenting and reviewing the project progress for the East Pershing Boulevard Improvement project. The project team presented several land use alternatives as well as four distinct intersection alternatives.

Alternative 1
Alternative 1 consists of Constructing additional lanes of traffic in an attempt to address the poor operating conditions. This alternative analyzes existing intersection layout adding one through lane to the westbound, eastbound and northbound approaches at Pershing Boulevard with Converse Avenue. This alternative is expected to provide better level of service with almost all movements operating at LOS D or better. However, the eastbound left turn at Pershing Boulevard at Converse Avenue would operate at LOS E. It would be reduce traffic crashes by about 10%. However, it would not address the other issues that were identified on the prior study.

Alternative 2
Alternative 2 would create a one-way segment of 19th Street between Converse and Pershing. Only eastbound traffic would be allowed on this segment. Any driver on Pershing and wanting to go west on 19th Street would need to go to Converse and Pershing and make a left turn and then a right turn at 19th Street. While traffic crashes are expected to be reduced by about 10%, the traffic conditions at Pershing and Converse would be worse than under existing conditions with longer lines of traffic and higher vehicle delays. It also would not address the other issues that were identified on the prior study.

Alternative 3
Alternative 3 consists of vacating 19th Street from between Converse and Pershing and routing the traffic up a widened Carbon Ave to Pershing Blvd was examined. This would create a cul-de-sac at the end of 19th Street near Converse, and force all 19th Street traffic to travel on Carbon to Pershing. A new traffic signal would likely be needed at Carbon and Pershing as a result. Because of the reduction in the number of intersections and having more of the approaches aligned at 90 degree angles, a 20% reduction in crashes is expected. However, the quality of traffic flow is not expected to be acceptable at Pershing and Converse or at Pershing and Carbon. It would address many of the other issues that were identified on the prior study, but the overall delay at the intersection of Pershing and Converse would be significant.

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Alternative 4
Alternative 4 consists of reconstructing the intersection as a two lane modern roundabout. Two lanes would be constructed on each entry and exit from the roundabout and also rotating in the circle. Vehicle speeds entering the roundabout will be about 15 to 20 MPH due to the entry angle of the approaches and speeds within the circulating lanes will be about 20 to 25 MPH. By virtue of the lower vehicle speeds, a modern roundabout has many inherent safety and operational benefits, and at this location is expected to reduce crashes by 50%. The quality of traffic flow is expected to be at acceptable levels into the future years, and this option does address many of the issues identified in the prior study.

Attendees to the open house were asked to provide feedback on the four intersection alternatives.

Based upon this input from attendees, as well as from questionnaires that were mailed in from residents, there were 5 concerns that were consistently expressed:

1. *Provide safe pedestrian crossings*
2. *Improve signal timing*
3. *Intersection spacing is to close*
4. *Improve access control to businesses*
5. *The existing intersection is confusing and difficult to navigate*

Following the open house, the design team will use the comments and concerns to select and refine a preferred alternative for the East Pershing Blvd/Converse Ave/19th St intersection.

The following is a summary of the answers to questions on the comment form.

1. What problems do you see with the existing E. Pershing Blvd/Converse Ave/19th Street Intersection?
    a. Intersections are too closely spaced
    b. Left turn arrows and signal timing
    c. Need NB RT lane on Converse to Pershing
    d. Need dedicated turn lanes
    e. Poor access control
    f. Too much traffic

2. When the Pershing Blvd/Converse Ave/19th Street intersection is rebuilt, what would you like to see improved?
    a. Improve pedestrian safety
    b. Eliminate center turn lane on Pershing
    c. Build a roundabout
    d. Improve signal timing

3. What intersection alternatives do you like/Why?
    a. None (1)
    b. #1 (6)
    c. #2 (-)
    d. #3 (2)
    e. #4 (10)

4. What intersection alternatives do you dislike/Why?
    a. #1 (-)
    b. #2 (3)
    c. #3 (8)
    d. #4 (8)

5. How can we improve the intersection for pedestrians?
    a. Install stop for pedestrians
    b. Improve visibility in all directions
    c. Construct pedestrian bridge
    d. Shorten walking distance
    e. Fix sidewalks
    f. #3

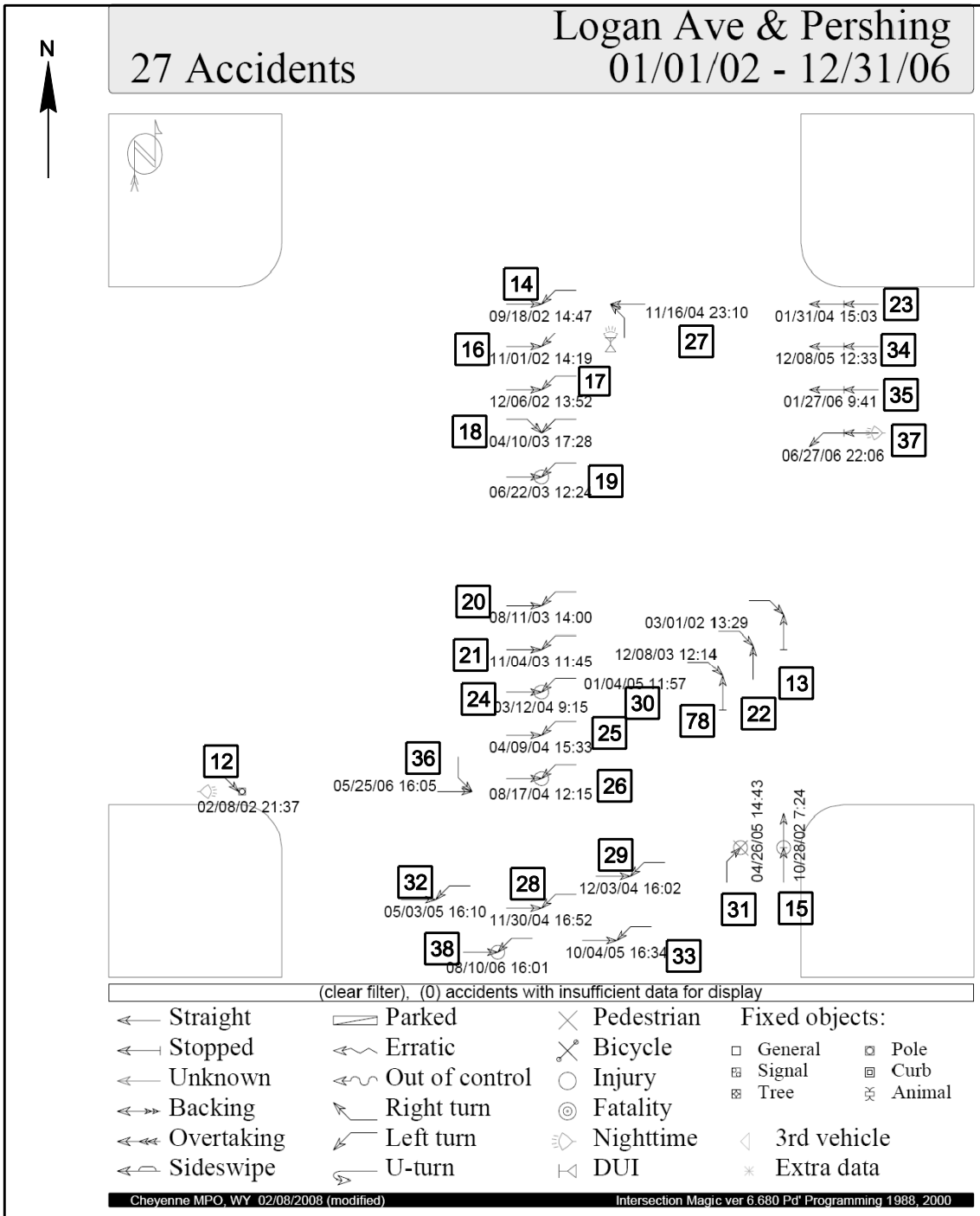
6. How can we improve the intersection for bicyclists?
    a. Construct a bike path
    b. Add bike lanes
    c. Route bikes around intersection

7. General Comments. Please provide us with any additional comments on issues you feel may affect the project or your property.
    a. Address student pedestrian problem
    b. Separate sidewalks from street
    c. Construct higher curbs to stop rain/snow drainage into front yards

d. Replace grass with cobblestones
e. Do not remove trees
f. Do it right the 1st time
g. Upgrade alleys
h. Remove median
i. I do not have alley access and would lose driveway utility
j. Concerned over loss of parking on my property

Appendix E

Crash Diagram – Logan/Pershing Intersection

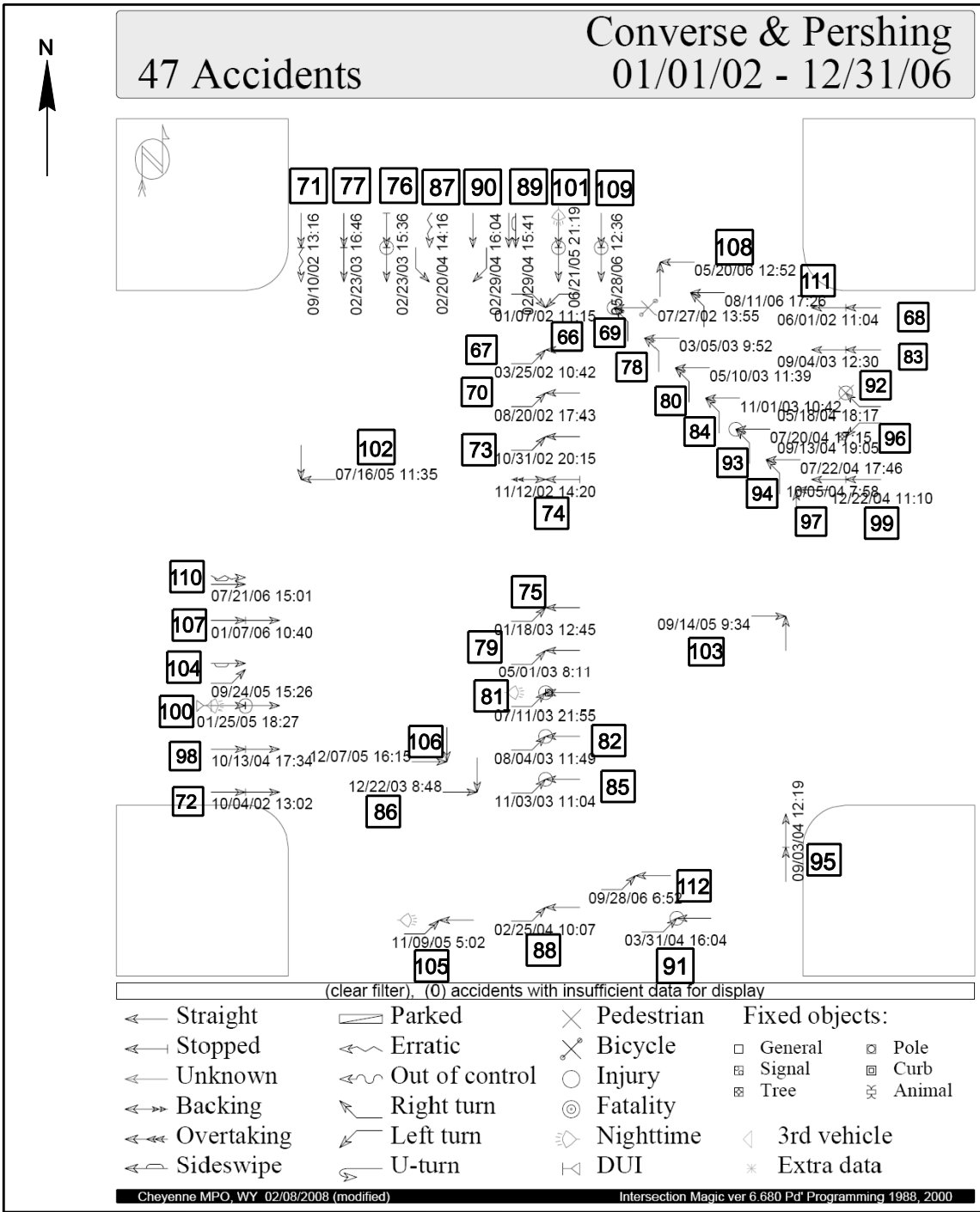


AYRES ASSOCIATES	E. Pershing Blvd. at logan Ave	XX Label Number
Project No. 3212-91-00 FEBRUARY, 2008	Crash Diagrams	Exhibit 1 Sheet 1 of 1

...\crashdiagLOGAN AVE.dgn 2/25/2008 1:04:52 PM

Appendix F

Crash Diagram – Converse/Pershing Intersection



AYRES ASSOCIATES	E. Pershing Blvd. at Converse Ave	XX Label Number
Project No. 3212-91-00 FEBRUARY, 2008	Crash Diagrams	Exhibit 1 Sheet 1 of 1

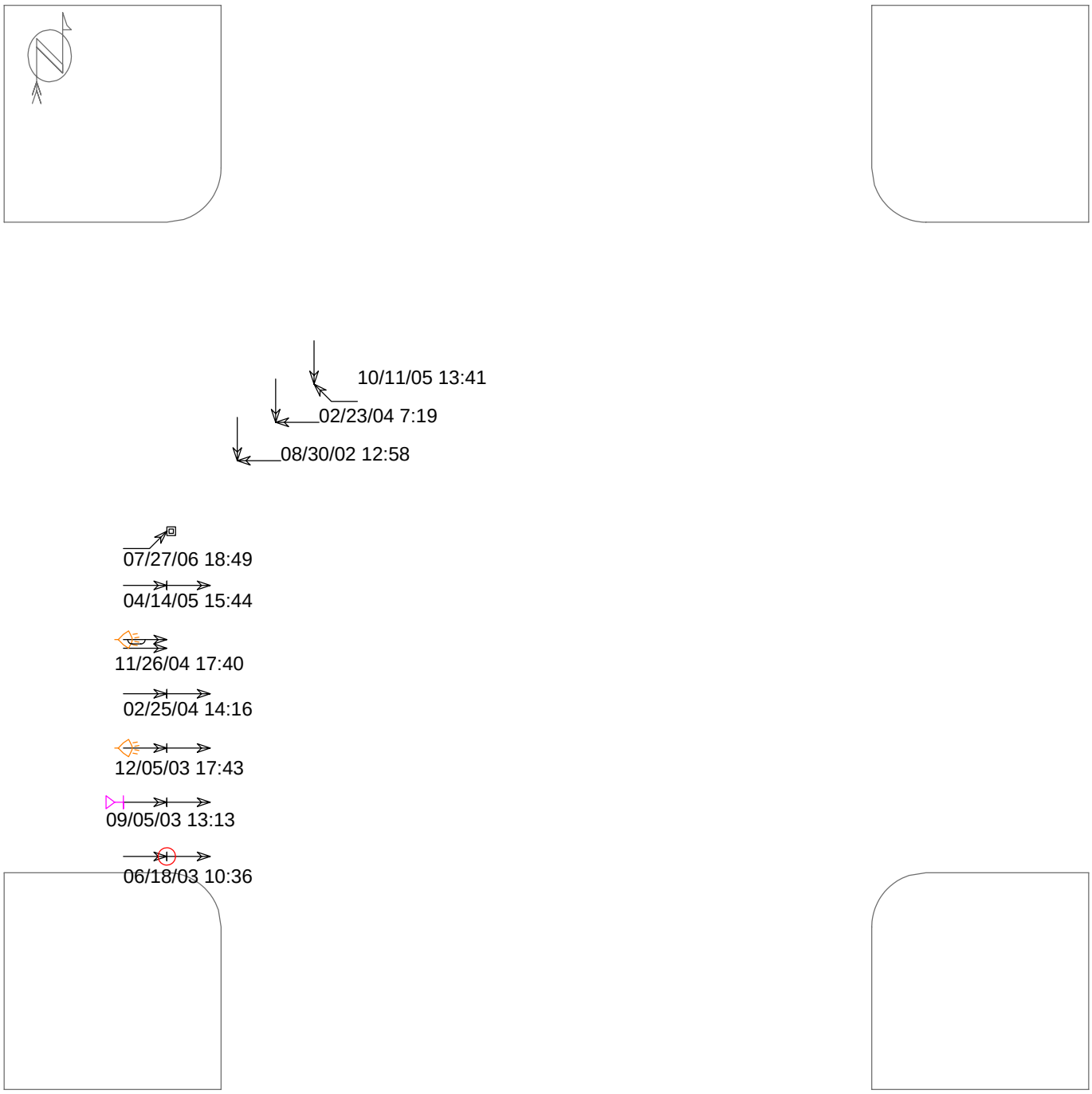
...\crashdiagConverse AVE.dgn 2/25/2008 1:01:04 PM

Appendix G

Crash Diagram – Salem/Pershing Intersection

10 Accidents

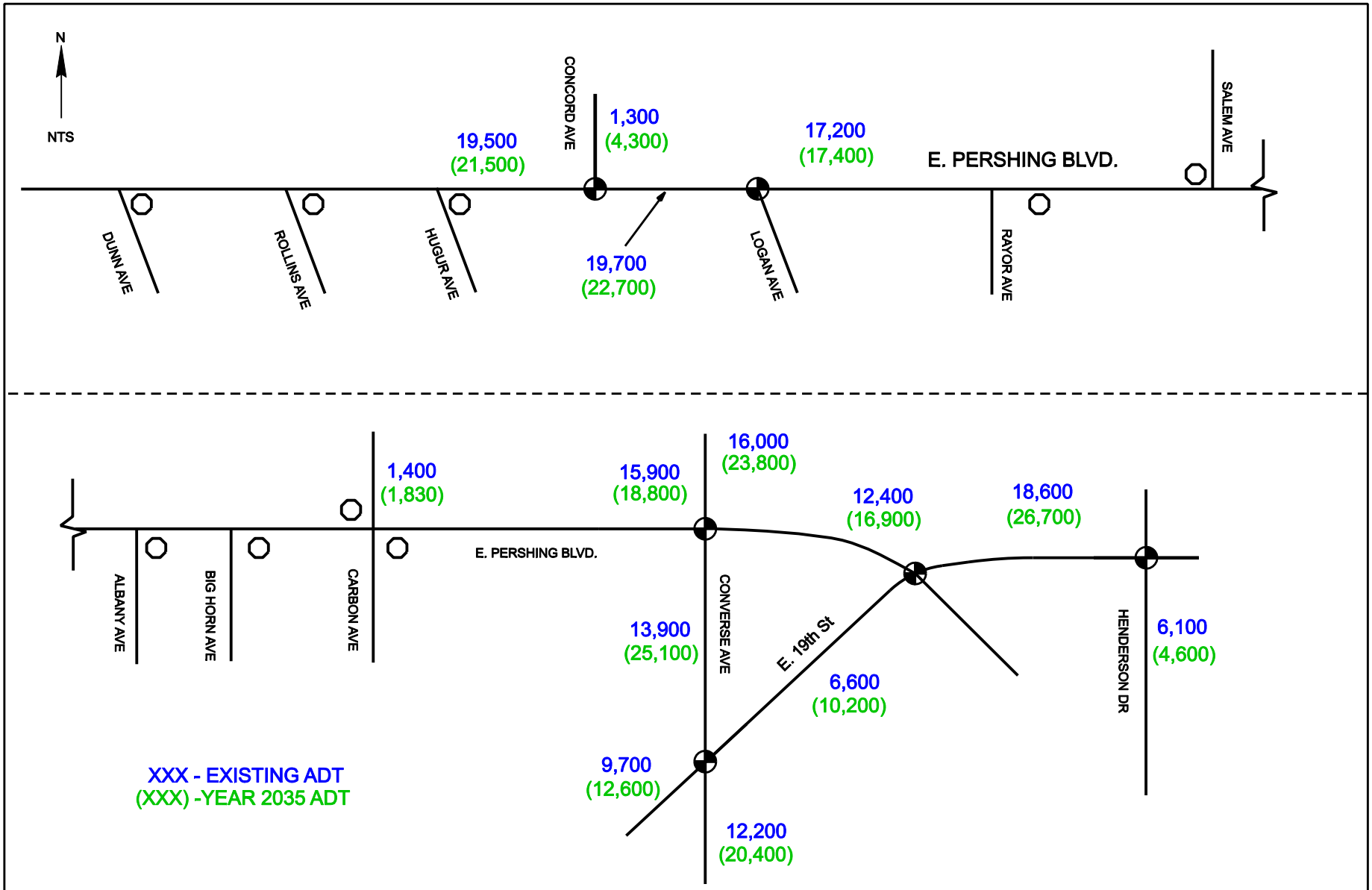
Pershing & Salem Rd
01/01/02 - 12/31/06



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

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

Appendix H
Traffic Volumes



AYRES ASSOCIATES

Project No. 3212-91-00

May, 2008

E. PERSHING BLVD. CORRIDOR

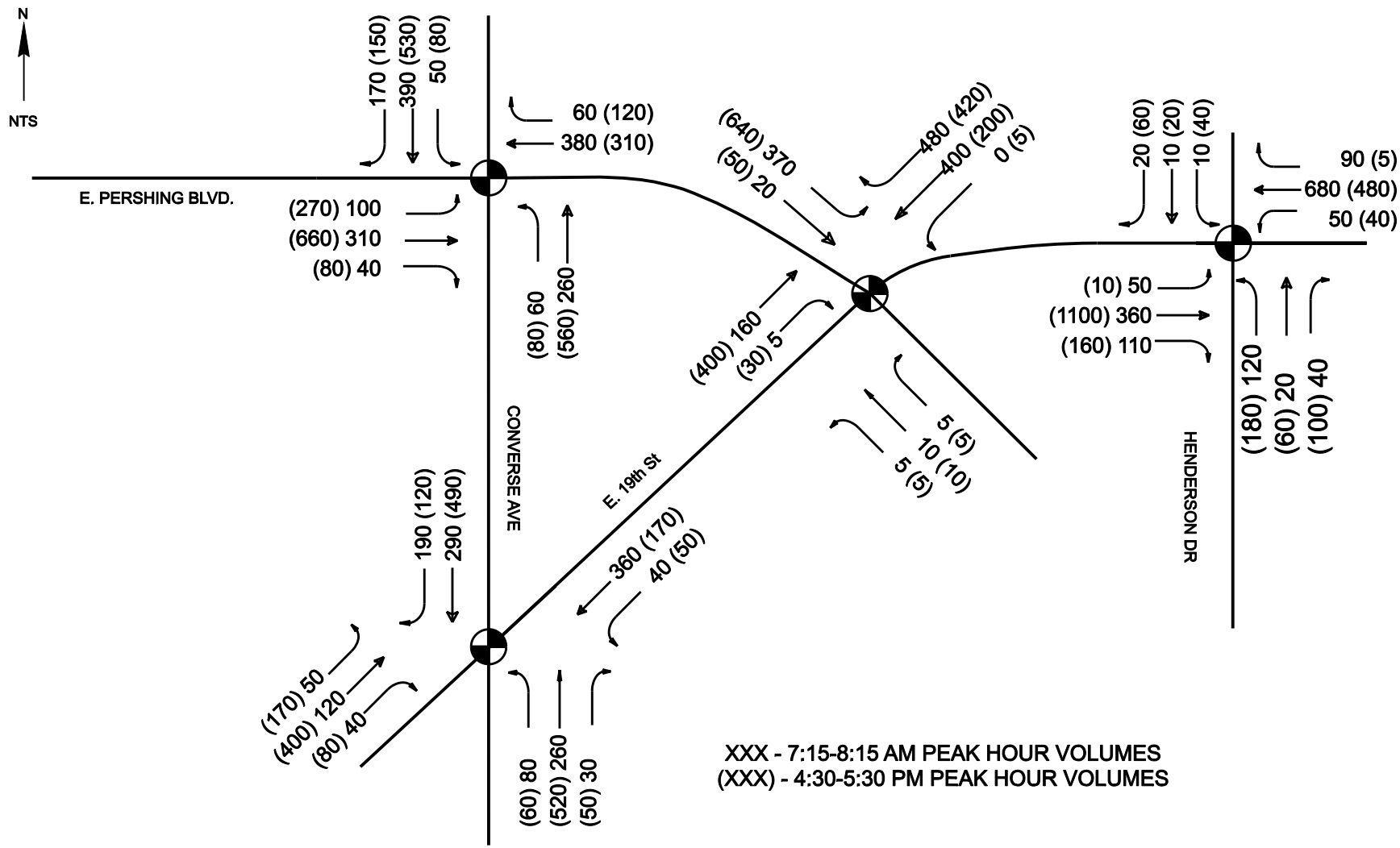
EXISTING AND YEAR 2035 ANNUAL DAILY TRAFFIC VOLUMES

= Traffic Signal Control

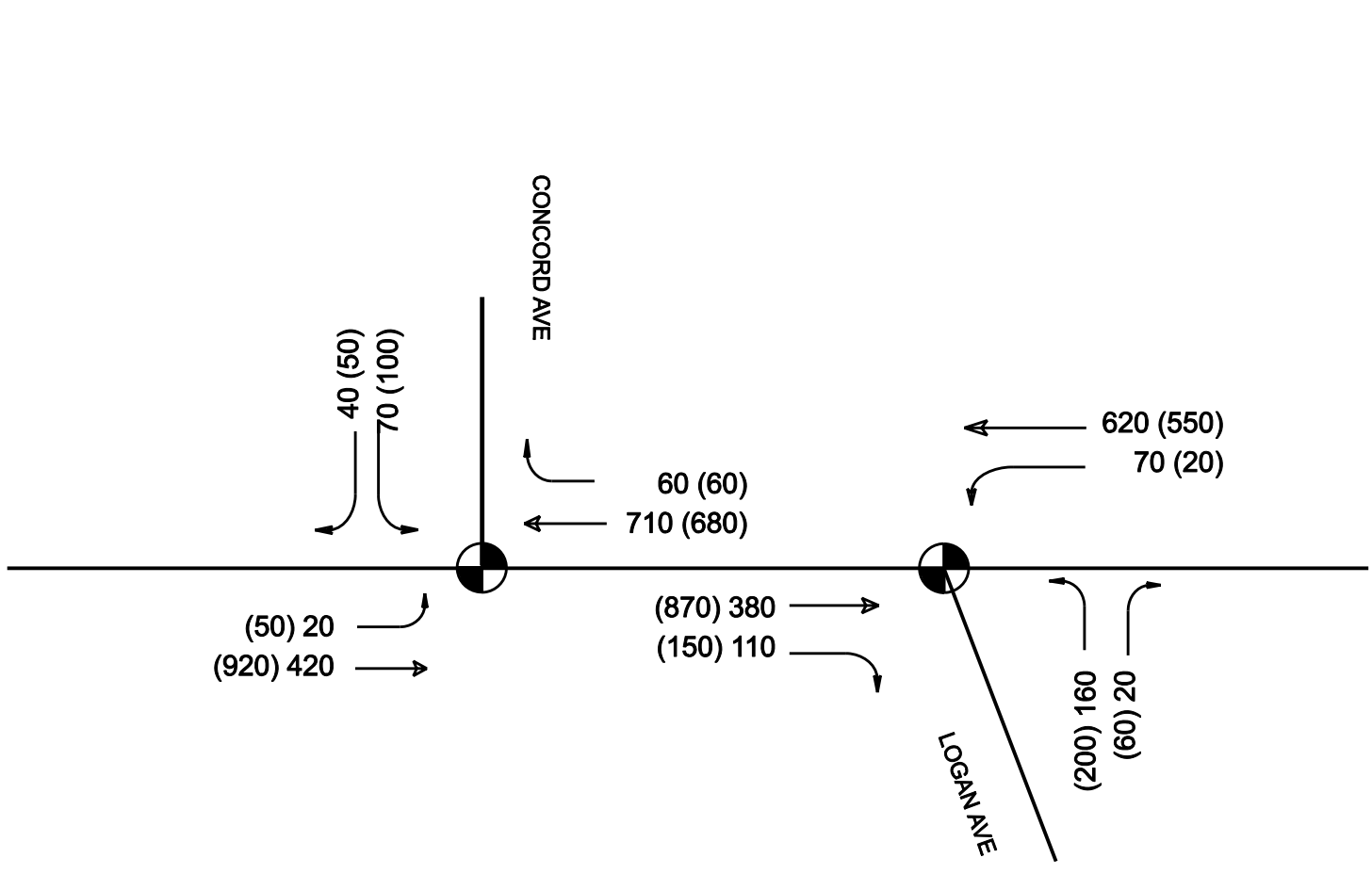
= Stop Control

EDAW | AECOM

SHEET 1 of 1



AYRES ASSOCIATES		E. PERSHING BLVD., CONVERSE AVE AND E. 19th St. INTERSECTION	= Traffic Signal Control	EDAW | AECOM
Project No. 3212-91-00	May, 2008	WEEKDAY TRAFFIC VOLUMES AND MOVEMENTS		SHEET 1 of 2



XXX - 7:15-8:15 AM PEAK HOUR VOLUMES
(XXX) - 4:30-5:30 PM PEAK HOUR VOLUMES

AYRES ASSOCIATES		E. PERSHING BLVD., CONCORD AVE AND LOGAN AVE INTERSECTION	= Traffic Signal Control	EDAW | AECOM
Project No. 3212-91-00	May, 2008	WEEKDAY TRAFFIC VOLUMES AND MOVEMENTS		SHEET 2 of 2

Appendix I

Notes for Council Work Session

MEETING MINUTES

Meeting Location: Council Meeting Room	Project No.: 32-1291.00
Date/Time: May 7, 2009 12:00 PM	Re: East Pershing Boulevard Corridor
	Cheyenne, Wyoming

Ayres Associates presented the recommended alternatives to the Mayor and the Cheyenne City Council. The presentation was broken into three parts; corridor alternatives and recommendations, Concord/Logan/Pershing intersection alternatives and recommendations, and Converse/19th/Pershing alternatives and recommendations.

Corridor Alternatives and Recommendations
The following three alternatives were evaluated for the corridor improvement:

1. Maintain Existing Cross Section
2. Five-Lane with a Continuous Left Turn Lane
3. Median Divided Cross Section

Roadway Alternative 1: Maintain Existing Cross Section

Under this alternative, the existing four-lane undivided roadway cross section would be maintained except that the through traffic lanes would be widened from 10.5 feet to 11 feet. Pedestrian conditions would be improved by constructing a standard 6-foot wide sidewalk with a curb separation buffer of 8.5 feet on the south side of Pershing Boulevard. On the north side of Pershing Boulevard an 8-foot wide mixed-use path would be constructed with a curb separation buffer of 8.5 feet. Pedestrian conditions would be improved with construction of a 6-foot wide sidewalk and a grassed or paved separation between the sidewalk and through traffic lanes. The total right of way under this alternative is 80-feet with a roadway curb-to-curb width of 51 feet. This improvement alternative minimizes impacts on adjacent properties while upgrading to standard roadway design criteria.

Alternative Roadway Improvement 2: Five-Lane Roadway with a Continuous Left Turn Lane

Under this alternative, Pershing Boulevard would be widened to accommodate a continuous left turn lane similar to the existing roadway segment to the west. This alternative provides improved roadway capacity by removing left turning vehicles from through traffic lanes, but increases pedestrian crossing distance on Pershing Boulevard. This alternative increases the existing 10.5-foot lanes to 11-foot wide through traffic lanes and adds a center 11-foot continuous left turn lane. Included in this alternative would be standard 6-foot wide sidewalk on the south side of Pershing Boulevard and an 8-foot wide path on the north side with a 2-foot wide paved sidewalk buffer between moving traffic lanes on Pershing Boulevard. The total right-of way required for this alternative is 80 feet with a 58-foot wide curb-to-curb roadway.

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Roadway Improvement Alternative 3: Median Divided Cross-Section

Under this alternative, Pershing Boulevard would be widened to accommodate a raised 11-foot wide median with two 11-foot wide travel lanes in each direction. This alternative provides improved roadway capacity by removing left turning vehicles from through traffic lanes, improved pedestrian safety with median refuge areas and aesthetics with landscaping treatments in the median. Included in this alternative would be standard 6-foot wide sidewalks on the south side of Pershing Boulevard and an 8-foot wide mixed-use path on the north side with 2- foot paved sidewalk buffers located between moving traffic lanes on Pershing Boulevard and the southern sidewalk and the northern mixed use path. The total right-of way required for this alternative is 80 feet.

Recommendation

The recommendation is to use all three of the alternative in various locations through out the corridor. The Alternative 2 will be used on the west end of the project from Dunn Avenue to Rollins Avenue. The five lane alternative matches into the existing cross section west of the project.

From Rollins Avenue to Rayor Avenue Alternative 3 will be used. The median will replace the existing center turn lane providing improved access control. Between Rayor Avenue and Salem Avenue the cross section will transition between Alternative 3 and Alternative 1.

Alternative 1 with its four lanes will match the existing roadway from Salem Avenue to Converse Avenue. The wider detached sidewalks will improve the pedestrian accommodations while still maintaining traffic capacity.

Concord/Logan/Pershing Alternatives and Recommendations
The following three intersection improvement alternatives were evaluated at the Concord Road and Logan Avenue intersections with East Pershing Boulevard:

1. Existing Conditions with Optimized Traffic Signal Timing
2. Intersection Realignment to a Standard Four-leg Design
3. Increased Intersection Spacing with Optimized Traffic Signal Timing

Alternative 1: Existing Conditions with Optimized Traffic Signal Timing

This alterative maintains existing intersection spacing and geometrics but optimizes signal timing and phasing to reduce delays and queuing. A protected-permissive left turn phase for eastbound traffic turning onto Logan Avenue is added to the signal operation. This will allow left turning vehicles to make their turn on a green arrow as well as on the green ball signal display. This alternative is expected to operate at LOS ‘D’ in 2035. Crashes are expected to be reduced by 18%

Alternative 2: Intersection Realignment to a Standard Four-leg Design

This improvement alternative eliminates the closely spaced offset intersections and creates a standard four-leg intersection. This alternative results in all movements operating at LOS ‘B’ or

better or better in the year 2035 with the exception of the northbound left turn which is expected to operate at a LOS 'C'. Crashes are expected to be reduced by 35%

Alternative 3 – Increased Intersection Spacing with Optimized Traffic Signal Timing

This intersection improvement alternative eliminates the skewed angle at the East Pershing Boulevard/Logan Avenue intersection by realigning Logan Avenue to the east by 70 feet. This results in an increased spacing between Concord Road and Logan Avenue to 245 feet. Traffic signal control timing is optimized. This alternative results in all traffic movements operating at LOS C or better in the year 2035. Crashes are expected to be reduced by 18%

Recommendation

Alternative 2 is the recommended alternative if Carey Junior High moves in 2012. This alternative rebuilds the two closely spaced signalized intersections as a standard four leg intersection.

Converse/19th/Pershing Intersection Alternatives and Recommendations

For the Pershing Boulevard intersections with 19th Street and Converse Avenue a set of six improvement alternatives were studied. This analysis is based on intersection operation with traffic growth projections for the year 2035. The six improvement alternatives analyzed involve:

1. Existing Conditions with Optimized Traffic Signal Timing
2. Geometric Improvements with Optimized Phasing and Timing
3. One-Way 19th Street
4. 19th Street Closure
5. Modern Roundabout

Alternative 1: Existing Conditions with Optimized Traffic Signal Timing

Alternative 1 consists of constructing additional lanes of traffic in an attempt to address the poor operating conditions. This alternative analyzes existing intersection layout adding one through lane to the westbound, eastbound and northbound approaches at Pershing Boulevard with Converse Avenue. This alternative is expected to provide better level of service with almost all movements operating at LOS D or better. However, the eastbound left turn at Pershing Boulevard at Converse Avenue would operate at LOS E. The reduction in crashes was misstated at the work session. Ayres Associates said the reduction in crashes would be about 18% for this alternative. After further review their would be minimal if any reduction in crashes from this alternative.

Alternative 2: Geometric Improvements with Optimized Phasing and Timing

Alternative 2 would create a one-way segment of 19th Street between Converse and Pershing. Only eastbound traffic would be allowed on this segment. Any driver on Pershing and wanting to go west on 19th Street would need to go to Converse and Pershing and make a left turn and then a right turn at 19th Street. While traffic crashes are expected to be reduced by about 22%, the traffic conditions at Pershing and Converse would be worse than under existing conditions with longer lines of traffic and higher vehicle delays. It also would not address the other issues that were identified on the prior study.

Alternative 3 – One Way 19th Street

Alternative 3 restricts the segment of 19th Street between Converse Avenue and Pershing Boulevard to one-way eastbound. Westbound traffic would be required to continue on Pershing Boulevard and either turn left at Converse Avenue or continue through and turn left at Carbon Avenue. This alternative requires the construction of dual westbound right turn lanes on 19th Street at Pershing Boulevard and on the westbound approach of Pershing Boulevard at Converse Avenue. While this alternative reduces the number of crashes, in 2035 the Converse intersection with Pershing is expected to operate at LOS 'F'.

Alternative 4: 19th Street Closure

Alternative 4 consists of vacating 19th Street from between Converse and Pershing and routing the traffic up a widened Carbon Ave to Pershing Blvd was examined. This would create a cul-de-sac at the end of 19th Street near Converse, and force all 19th Street traffic to travel on Carbon to Pershing. A new traffic signal would likely be needed at Carbon and Pershing as a result. Because of the reduction in the number of intersections and having more of the approaches aligned at 90-degree angles, a 35% reduction in crashes is expected. However, the quality of traffic flow is not expected to be acceptable at Pershing and Converse or at Pershing and Carbon. It would address many of the other issues that were identified on the prior study, but the overall delay at the intersection of Pershing and Converse would be significant.

Alternative 5: Modern Roundabout

Alternative 5 consists of reconstructing the intersection as a two lane modern roundabout. Two lanes would be constructed on each entry and exit from the roundabout and also rotating in the circle. Vehicle speeds entering the roundabout will be about 15 to 20 MPH due to the entry angle of the approaches and speeds within the circulating lanes will be about 20 to 25 MPH. By virtue of the lower vehicle speeds, a modern roundabout has many inherent safety and operational benefits, and at this location is expected to reduce crashes by 67%. The quality of traffic flow is expected to be at acceptable levels into the future years, and this option does address many of the issues identified in the prior study.

Recommendations

The Modern Roundabout was the recommended alternative presented at the Council Work Session. This alternative was chosen because it had the greatest reduction in crashes, it improved traffic capacity by keeping a LOS C for the intersection in 2035 and it had the lowest cost to build and maintain of the alternatives requiring reconstruction. This alternative will also require less right-of-way than Alternative 2.

The Council asked how pedestrians would cross the street at the roundabout. It was explained the pedestrian crossings are pulled back from the intersections so both the rivers and the pedestrians only have a better view of what is coming up. The pedestrians also only need to watch one direction of traffic at a time. In studies it has been shown that pedestrian vehicle crashes are reduced by as much as 75 percent.

The council was still concerned about pedestrian crossings due to the high volume of traffic. Ayres Associates will review the intersection and provide a recommendation for pedestrian crossings.

Appendix J

Notes from Planning Commission Meeting

MEETING MINUTES

Meeting Location: City Council Chambers	Project No.: 32-1291.00
Date/Time: May 18, 2009 / 6:00 pm	Re: Planning Commission Meeting East Pershing Boulevard Corridor and Intersection Planning Project
Notes By: Andrew Dana	

Gene MacDonald from Ayres Associates presented the recommended alternatives to the Planning Commission and the public. The presentation was broken into three parts; corridor alternatives and recommendations, Concord/Logan/Pershing intersection alternatives and recommendations, and Converse/19th/Pershing alternatives and recommendations.

Corridor Alternatives and Recommendations
The following three alternatives were evaluated for the corridor improvement:

1. Maintain Existing Cross Section
2. Five-Lane with a Continuous Left Turn Lane
3. Median Divided Cross Section

Roadway Alternative 1: Maintain Existing Cross Section

Under this alternative, the existing four-lane undivided roadway cross section would be maintained except that the through traffic lanes would be widened from 10.5 feet to 11 feet. Pedestrian conditions would be improved by constructing a standard 6-foot wide sidewalk with a curb separation buffer of 8.5 feet on the south side of Pershing Boulevard. On the north side of Pershing Boulevard an 8-foot wide mixed-use path would be constructed with a curb separation buffer of 8.5 feet. Pedestrian conditions would be improved with construction of a 6-foot wide sidewalk and a grassed or paved separation between the sidewalk and through traffic lanes. The total right of way under this alternative is 80-feet with a roadway curb-to-curb width of 51 feet. This improvement alternative minimizes impacts on adjacent properties while upgrading to standard roadway design criteria.

Alternative Roadway Improvement 2: Five-Lane Roadway with a Continuous Left Turn Lane

Under this alternative, Pershing Boulevard would be widened to accommodate a continuous left turn lane similar to the existing roadway segment to the west. This alternative provides improved roadway capacity by removing left turning vehicles from through traffic lanes, but increases pedestrian crossing distance on Pershing Boulevard. This alternative increases the existing 10.5-foot lanes to 11-foot wide through traffic lanes and adds a center 11-foot continuous left turn lane. Included in this alternative would be standard 6-foot wide sidewalk on the south side of Pershing Boulevard and an 8-foot wide path on the north side with a 2-foot wide paved sidewalk buffer between moving traffic lanes on Pershing Boulevard. The total right-of way required for this alternative is 80 feet with a 58-foot wide curb-to-curb roadway.

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Roadway Improvement Alternative 3: Median Divided Cross-Section

Under this alternative, Pershing Boulevard would be widened to accommodate a raised 11-foot wide median with two 11-foot wide travel lanes in each direction. This alternative provides improved roadway capacity by removing left turning vehicles from through traffic lanes, improved pedestrian safety with median refuge areas and aesthetics with landscaping treatments in the median. Included in this alternative would be standard 6-foot wide sidewalks on the south side of Pershing Boulevard and an 8-foot wide mixed-use path on the north side with 2- foot paved sidewalk buffers located between moving traffic lanes on Pershing Boulevard and the southern sidewalk and the northern mixed use path. The total right-of way required for this alternative is 80 feet.

Recommendation

The recommendation is to use all three of the alternative in various locations through out the corridor. The Alternative 2 will be used on the west end of the project from Dunn Avenue to Rollins Avenue. The five lane alternative matches into the existing cross section west of the project.

From Rollins Avenue to Rayor Avenue Alternative 3 will be used. The median will replace the existing center turn lane providing improved access control. Between Rayor Avenue and Salem Avenue the cross section will transition between Alternative 3 and Alternative 1.

Alternative 1 with its four lanes will match the existing roadway from Salem Avenue to Converse Avenue. The wider detached sidewalks will improve the pedestrian accommodations while still maintaining traffic capacity.

Concord/Logan/Pershing Alternatives and Recommendations
The following three intersection improvement alternatives were evaluated at the Concord Road and Logan Avenue intersections with East Pershing Boulevard:

1. Existing Conditions with Optimized Traffic Signal Timing
2. Increased Intersection Spacing with Optimized Traffic Signal Timing
3. Intersection Realignment to a Standard Four-leg Design

Alternative 1: Existing Conditions with Optimized Traffic Signal Timing

This alterative maintains existing intersection spacing and geometrics but optimizes signal timing and phasing to reduce delays and queuing. A protected-permissive left turn phase for eastbound traffic turning onto Logan Avenue is added to the signal operation. This will allow left turning vehicles to make their turn on a green arrow as well as on the green ball signal display. This alternative is expected to operate at LOS ‘D’ in 2035. Crashes are expected to be reduced by 18%

Alternative 2 – Increased Intersection Spacing with Optimized Traffic Signal Timing

This intersection improvement alternative eliminates the skewed angle at the East Pershing Boulevard/Logan Avenue intersection by realigning Logan Avenue to the east by 70 feet. This results in an increased spacing between Concord Road and Logan Avenue to 245 feet. Traffic

signal control timing is optimized. This alternative results in all traffic movements operating at LOS C or better in the year 2035. Crashes are expected to be reduced by 18%

Alternative 3: Intersection Realignment to a Standard Four-leg Design

This improvement alternative eliminates the closely spaced offset intersections and creates a standard four-leg intersection. This alternative results in all movements operating at LOS 'B' or better or better in the year 2035 with the exception of the northbound left turn which is expected to operate at a LOS 'C'. Crashes are expected to be reduced by 35%

Recommendation

Alternative 3 is the recommended alternative if Carey Junior High moves in 2012. This alternative rebuilds the two closely spaced signalized intersections as a standard four leg intersection.

Converse/19th/Pershing Intersection Alternatives and Recommendations

For the Pershing Boulevard intersections with 19th Street and Converse Avenue a set of six improvement alternatives were studied. This analysis is based on intersection operation with traffic growth projections for the year 2035. The six improvement alternatives analyzed involve:

1. Existing Conditions with Optimized Traffic Signal Timing
2. One-Way 19th Street
3. 19th Street Closure
4. Geometric Improvements with Optimized Phasing and Timing
5. Modern Roundabout

Alternative 1: Existing Conditions with Optimized Traffic Signal Timing

Alternative 1 consists of constructing additional lanes of traffic in an attempt to address the poor operating conditions. This alternative analyzes existing intersection layout adding one through lane to the westbound, eastbound and northbound approaches at Pershing Boulevard with Converse Avenue. This alternative is expected to provide better level of service with almost all movements operating at LOS D or better. However, the eastbound left turn at Pershing Boulevard at Converse Avenue would operate at LOS E. The reduction in crashes was misstated at the work session. Ayres Associates said the reduction in crashes would be about 18% for this alternative. After further review their would be minimal if any reduction in crashes from this alternative.

Alternative 2 – One Way 19th Street

Alternative 2 restricts the segment of 19th Street between Converse Avenue and Pershing Boulevard to one-way eastbound. Westbound traffic would be required to continue on Pershing Boulevard and either turn left at Converse Avenue or continue through and turn left at Carbon Avenue. This alternative requires the construction of dual westbound right turn lanes on 19th Street at Pershing Boulevard and on the westbound approach of Pershing Boulevard at Converse Avenue. While this alternative reduces the number of crashes, in 2035 the Converse intersection with Pershing is expected to operate at LOS 'F'.

Alternative 3: 19th Street Closure

Alternative 3 consists of vacating 19th Street from between Converse and Pershing and routing the traffic up a widened Carbon Ave to Pershing Blvd was examined. This would create a cul-de-sac at the end of 19th Street near Converse, and force all 19th Street traffic to travel on Carbon to Pershing. A new traffic signal would likely be needed at Carbon and Pershing as a result. Because of the reduction in the number of intersections and having more of the approaches aligned at 90-degree angles, a 35% reduction in crashes is expected. However, the quality of traffic flow is not expected to be acceptable at Pershing and Converse or at Pershing and Carbon. It would address many of the other issues that were identified on the prior study, but the overall delay at the intersection of Pershing and Converse would be significant.

Alternative 4: Geometric Improvements with Optimized Phasing and Timing

Alternative 4 would create a one-way segment of 19th Street between Converse and Pershing. Only eastbound traffic would be allowed on this segment. Any driver on Pershing and wanting to go west on 19th Street would need to go to Converse and Pershing and make a left turn and then a right turn at 19th Street. While traffic crashes are expected to be reduced by about 22%, the traffic conditions at Pershing and Converse would be worse than under existing conditions with longer lines of traffic and higher vehicle delays. It also would not address the other issues that were identified on the prior study.

Alternative 5: Modern Roundabout

Alternative 5 consists of reconstructing the intersection as a two lane modern roundabout. Two lanes would be constructed on each entry and exit from the roundabout and also rotating in the circle. Vehicle speeds entering the roundabout will be about 15 to 20 MPH due to the entry angle of the approaches and speeds within the circulating lanes will be about 20 to 25 MPH. By virtue of the lower vehicle speeds, a modern roundabout has many inherent safety and operational benefits, and at this location is expected to reduce crashes by 67%. The quality of traffic flow is expected to be at acceptable levels into the future years, and this option does address many of the issues identified in the prior study.

Recommendations

The Modern Roundabout was the recommended alternative presented at the Council Work Session. This alternative was chosen because it had the greatest reduction in crashes, it improved traffic capacity by keeping a LOS C for the intersection in 2035 and it had the lowest cost to build and maintain of the alternatives requiring reconstruction. This alternative will also require less right-of-way than Alternative 2.

After Gene MacDonald completed the presentation the meeting was opened to public comments and questions.

Public Comments and Questions

Mark Houscher
1751 East Pershing

- No access to his house from alley only access from front side of house.

- Concerns the existing plan will take 11 ft from his front yard making it so he can not park in his driveway. (*This is an incorrect statement. The sidewalk will move 5 to 6 feet closer to his home not 11 feet.)*
- Concerns of why put in a median?
- Why beautifying Pershing?
- Why make it pedestrian friendly-no need to?
- Acquisition of property costs a lot and why?

Tom Mason Comment: This is a 35% design level plan; looking for the general consensus of the plan ultimately. If we receive that from governing body then we would move in to final design. Whoever is hired to do the design would be talking with the property owners also.

Steve Capachick
1944 East Pershing

- Coming from west turning into driveways on the north there should be a turn lane – there is no improvement for safety without a turn lane.
- Only improvement for their section is wider sidewalks for the pedestrians.

Gerald Roots
1916 East 22nd

- Discourage any changes that would encourage more traffic on Carbon Avenue or East 22nd street.
- He likes the roundabout alternative.

Greg Singer
2218 E. 19th Street
(Singer Studio and Gallery)

- He supports the roundabout.
- Closing of 19th Street would be disastrous.

John Jayko
1776 Newton Drive

- Idea of roundabout scares him – confused by them.
- Educate the public when opening a roundabout.
- Does not believe building a roundabout will save money. Looks like a lot of dirt and concrete and landscaping.
- Not in favor of closing 19th.
- Discourage any more traffic on Carbon.
- Encourage you to not install a median, although pretty, more medians being removed than installed.
- No purpose in separating sidewalks from streets.

- Pershing/Converse/19th the problem is the existing design. Should run two lanes down Pershing Boulevard

Dave Steiner
2236 East Pershing

- Are the 47 accidents according to the police department?
- East end of the project is more widening of sidewalk and rebuilding the retaining wall?
- Where are the bicycles to go?

Gene MacDonald commenting –
47 accidents over 5 years from Police department's reports.
Regard to sidewalk is - future plan for connectivity. This could be connected to the Greenway in the future.

Erica Beller
1723 East Pershing

- Has small children and can't allow them to play in the front yard – she is excited that they are making safety improvements.
- For those of us losing land in front of the yards will there be some compensation?
- Concerned about vehicles/and her home.

Gene MacDonald Comment
Yes the City would attempt to discuss with you regarding the land – reminds everyone the City does have the ability to use up the right-of-way and close access points. The City has the authority to do this. City in general does take in account the property owner and the traveling public. 10 – 15 ft back of the curb is the right-of-way.

Tom Mason: No additional property is being taken other than within the right-of-way in most areas along the corridor. Additional right-of-way would only be needed at the intersection of Converse/Pershing/19th and the Intersection of Concord/Logan/Pershing

Denise Freeman
9515 Cursey

- In favor of the roundabout.
- Concerns with Pedestrians without any crosswalks or lights.

Gene MacDonald Comment
Cross walks are pulled back from the intersection. Pedestrians only have conflicts with traffic in one direction at a time.
Crosswalks can be signalized if warrants are met. (Usually not necessary but can be done)

Dale Check
2205 East Pershing

- Crosswalks best be set back as drivers looking behind them.
- Lawn between curb and sidewalk – who maintains it?
- Roundabout – looking over shoulder and not watching for crosswalks. He thinks minor sideswipes/accidents aren't reported in roundabouts.

Tom Heshback
1506 Andover

- We are taking much too lightly the snow and wind development.
- He feels pedestrian crossings at roundabouts are high risk and though they are shorter crossings he feels there are more of them.
- Roundabouts are new to Cheyenne we don't need them here just because they are at other locations.
- He felt this was the same presentation given in January and that no one listened to his concerns.
- Biggest concerned is that traffic volumes will continue to grow along east Pershing and a more permanent solution is needed to provide for east/west traffic.
- He feels the roundabout is a weird band aide for Pershing.
- He feels traffic will avoid the roundabout and thinks the design team needs to look into how the roundabout affects the entire community not one intersection.

Close Public Comment Period…..

Gene MacDonald

With respect to the meeting to the public meeting in January, that was a meeting that we showed the public what we did with the comments in 2008 and how we incorporated them into the design. That is why this is very similar to what we are showing tonight. Again, with respect to the roundabout, in terms of capacity, you cannot beat a roundabout. It will out perform a standard intersection. Very cost effective, less acquisition, and safer. We do understand that it is new. They work well after being built. Typically once one is installed others are installed.

Tom Mason

Again I appreciate everyone attending tonight.

Yes, absolutely education would be the key if the council moves forward on the plan and the roundabout is selected by the City/governing body to begin the design we will be sure to set-up the education on how to drive roundabouts. Currently on plan.cheyenne.org website there is a roundabout link that takes you to educational material. I encourage everyone to take a look and read about it. I can say without a doubt we did at the previous public meetings and corridor walk and we did listen to what people had to say and took it into consideration. The recommendation shown tonight shows three (3) different alternatives. The reason there is (3) separate sections – is because we listened to the public and their comments. Otherwise there would have been just one section for the whole corridor. Again, comments were listened to and received and taken into considerations.

Question for Tom Mason.

What is the current back-to-back curb width on Curry and Converse?

Andy Dana's response: 42 ft for the roadway, 10.5 ft lanes. Back to curb to back to curb you would be 47 ft currently. Future would be 47 to 49 ft. same width just with detached sidewalks. Tried to make is safer to the pedestrians.

Question: What is the classification for now and future.

Principal arterial – 120 ft of right of way. Keeping it to 80.

Question: Who would maintain the strip of lawn?

Maintenance of the tree lawn is the responsibility of the property owner.

Question: No more traffic on Carbon or East 22nd?

This would keep the traffic on the main streets. The alternative of closing 19th is not being recommended.

Question: What is the purpose to try to make it pedestrian friendly? Are we wanting to entice people is that the idea to make it more populated to the pedestrian.

Tom Mason's response. Our proposed recommendation with the detached sidewalks and wider sidewalks is not to entice. Children walking back and forth to school currently use the corridor. This would make it more pedestrian friendly. The north side would have a multi-use sidewalk by being 8 ft. Sidewalk was put closer to homes to keep the pedestrians safe. Bikes and pedestrians can use this together.

Question –bicyclist was cited because she was riding her bike on sidewalk and was hit by vehicle leaving driveway. Is there some special law to do this?

Andy's response. Basically from 8 ft and larger is a multi-use path. Anything smaller is considered unsafe to have the combination of pedestrian and bicyclist.

So does that 8 ft sidewalk make it legal to ride a bike on.

Tom Mason: I do not know the answer to your question.

As far as City law we would have to check. By federal highway standards a sidewalk would have to be at a minimum of 8 ft wide to be considered a multi-use path.

Riding bike on sidewalk in Cheyenne is illegal.

Question: What is the width of green way path. If you had the green way into that it would work?

10 ft wide. Green way system does connect to different neighborhoods in different manners.

Question: 1506 Andover, how do you remove the snow from the roundabout?

The exact way we cannot tell you. In Wisconsin, typically the snow is pushed towards the center as this allows for storage also. The snowplow drivers learn quickly how to maneuver these roundabouts and what is the quickest removal plan.

Comments will be written up and this will be edited for final approval and some time will be posted for approval.

MOTION: Motion was made to send this document to City Council after reviewing.

Question: What is the sequence of events?

Ayres provided a 35% design level
City/Governing body agrees to recommendation
City/Governing will then move to Final Design
Consultant would be hired to complete the final design

COMMENT: Purpose of tonight's meeting was to take public comments on this plan and that has been satisfied. The plan will be forwarded to the governing body. The comments that were made tonight will be included when submitting to City Council.

MOTION: Motion was made to except comments tonight and to move the idea of East Pershing corridor intersection improvement project to the City Council with the recommendation of approval of specifically the roundabout.

2nd the motion…

Yes include the corridor.

Any further questions: NO

Roll was taken…the motion passes

Appendix K

Engineers Estimate of Probable Cost

Reconstruction of E Pershing Corridor

With Concord/Logan Intersection Replaced in Existing Configuration

Location: E Pershing Boulevard from Dunn Ave to Carbon Ave

Assumptions:

- Complete Reconstruction of Corridor
- 8" Concrete Pavement
- 6" Base Aggregate Dense
- Right Way cost not included in estimate
- Existing Pavement Is Concrete
- Common Excavation assuming 1' of excavation
- Complete Sidewalk Replacements

Item Description	Unit	Unit Price	Estimated Quantity	Cost
Removing Pavement	SY	$5.00	23,450	$117,250
Removing Curb and Gutter	LF	$4.00	9,200	$36,800
Removing Concrete Sidewalk	SY	$5.00	2,570	$12,850
Removing Signals	LS	$20,000.00	1	$20,000
Grade W Base Course	TON	$15.00	9,100	$136,500
Common Excavation	CY	$5.00	24,000	$120,000
Concrete Pavement	SY	$40.00	23,500	$940,000
Sawing Concrete Pavement (Full Depth)	LF	$3.50	4,000	$14,000
24" Curb and Gutter	LF	$16.75	9,200	$154,100
Concrete Sidewalk 4-Inch	SF	$5.00	45,000	$225,000
Traffic Control	LS	$50,000.00	1	$50,000
Traffic Signal Equipment				
Mast Arm and Pole Type V		$15,208.00	4	$60,832
Signal Heads		$900.00	12	$10,800
Ped Heads		$650.00	8	$5,200
Controller and Cabinet		$12,000.00	1	$12,000
Cabling		$1,800.00	1	$1,800
Video Detection		$6,500.00	4	$26,000
Conduit		$10.00	330	$3,300
Contingency - 10%				$11,663
Mobilization	LS	$215,000.00	1	$215,000
Sub Total				**$2,173,095**
Miscellaneous Other Items 35%				$760,600
Engineering Design & Construction Contingency 25%				$733,400
Total				**$3,667,095**
Say				**$3,670,000**

Reconstruction of E Pershing Corridor

With Concord/Logan Intersection Realignment Construction Cost Estimate

Location: E Pershing Boulevard from Dunn Ave to Carbon Ave

Assumptions:

- Complete Reconstruction of Corridor and Realignment of Concord/Logan Intersection
- 8" Concrete Pavement
- 6" Base Aggregate Dense
- Right Way cost not included in estimate
- Existing Pavement Is Concrete
- Common Excavation assuming 1' of excavation
- Complete Sidewalk Replacements

Item Description	Unit	Unit Price	Estimated Quantity	Cost
Removing Pavement	SY	$5.00	30,000	$150,000
Removing Curb and Gutter	LF	$4.00	11,500	$46,000
Removing Concrete Sidewalk	SY	$5.00	3,800	$19,000
Removing Signals	LS	$20,000.00	1	$20,000
Grade W Base Course	TON	$15.00	13,900	$208,500
Common Excavation	CY	$5.00	30,000	$150,000
Concrete Pavement	SY	$40.00	23,500	$940,000
Asphalt Pavement	Ton	$60.00	2,500	$150,000
Sawing Concrete Pavement (Full Depth)	LF	$3.50	6,200	$21,700
24" Curb and Gutter	LF	$16.75	12,000	$201,000
Concrete Sidewalk 4-Inch	SF	$5.00	58,700	$293,500
Traffic Control	LS	$50,000.00	1	$50,000
Traffic Signal Equipment				
Mast Arm and Pole Type V		$15,208.00	4	$60,832
Signal Heads		$900.00	12	$10,800
Ped Heads		$650.00	8	$5,200
Controller and Cabinet		$12,000.00	1	$12,000
Cabling		$1,800.00	1	$1,800
Video Detection		$6,500.00	4	$26,000
Conduit		$10.00	330	$3,300
Contingency - 10%				$11,663
Mobilization	LS	$260,000.00	1	$260,000
Sub Total				**$2,641,295**
Miscellaneous Other Items 35%				$924,500
Engineering Design & Construction Contingency 25%				$891,400
Total				**$4,457,195**
Say				**$4,460,000**

Pershing Converse Alt 2 Geometric Improvements Construction Cost Estimate

Location: Pershing/Converse19th Intersection

Assumptions:

- Complete Reconstruction of Intersection
- 8" Concrete Pavement
- 6" Base Aggregate Dense
- Right Way costs are not included
- Project will not be built under traffic. Traffic will be detoured.
- Existing Pavement Is Concrete
- Sidewalk on Each side of each Leg
- Common Excavation assuming 1' of excavation
- Complete Sidewalk Replacements

Item Description	Unit	Unit Price	Estimated Quantity	Cost
Removing Pavement	SY	$5.00	23,000	$115,000
Removing Curb and Gutter	LF	$4.00	7,000	$28,000
Removing Concrete Sidewalk	SY	$5.00	2,400	$12,000
Removing Signals	LS	$30,000.00	1	$30,000
Base Aggregate Dense 1 1/4-Inch	TON	$15.00	8,000	$120,000
Common Excavation	CY	$5.00	13,000	$65,000
Concrete Pavement	SY	$50.00	29,700	$1,485,000
Sawing Concrete Pavement (Full Depth)	LF	$3.50	2,200	$7,700
Vertical Face Curb and Gutter	LF	$16.75	7,800	$130,650
Concrete Sidewalk 4-Inch	SF	$5.00	27,700	$138,500
Traffic Control and Detour	LS	$75,000.00	1	$75,000
Traffic Signal Equipment				
Mast Arm and Pole Type V		$15,208.00	11	$167,288
Signal Heads		$900.00	33	$29,700
Ped Heads		$650.00	20	$13,000
Controller and Cabinet		$12,000.00	3	$36,000
Cabling		$1,800.00	3	$5,400
Video Detection		$6,500.00	12	$78,000
Conduit		$10.00	2400	$24,000
Contingency - 10%				$32,939
Mobilization	LS	$300,000.00	1	$300,000
Sub Total				**$2,893,177**
Miscellaneous Other Items 35%				$1,012,600
Engineering Design & Construction Contingency 25%				$976,400
Total				**$4,882,177**
Say				**$4,880,000**

Pershing & Converse Alt 6 Multi-Lane Roundabout Construction Cost Estimate

Location: Pershing/Converse19th Intersection

Assumptions:
- 8" Concrete Pavement
- 6" Base Aggregate Dense
- Right Way costs are not included
- Project will not be built under traffic. Traffic will be detoured.
- Existing Pavement Is Concrete
- Sidewalk on Each side of each Leg
- Common Excavation assuming 1' of excavation

Item Description	Unit	Unit Price	Estimated Quantity	Cost
Removing Pavement	SY	$5.00	23,000	$115,000
Removing Curb and Gutter	LF	$4.00	7,000	$28,000
Removing Concrete Sidewalk	SY	$5.00	2,400	$12,000
Removing Signals	LS	$30,000.00	1	$30,000
Base Aggregate Dense 1 1/4-Inch	TON	$15.00	5,250	$78,750
Common Excavation	CY	$5.00	8,000	$40,000
Concrete Pavement	SY	$50.00	17,000	$850,000
Sawing Concrete Pavement (Full Depth)	LF	$3.50	2,200	$7,700
Mountable Curb and Gutter	LF	$16.75	10,600	$177,550
Concrete Sidewalk 4-Inch	SF	$5.00	27,400	$137,000
9" Concrete Truck Apron	SF	$15.00	8,545	$128,175
Traffic Control and Detour	LS	$75,000.00	1	$75,000
Crosswalk Beacons	LS	$100,000.00	1	$100,000
Mobilization	LS	$190,000.00	1	$190,000
Sub Total				**$1,969,175**
Miscellaneous Other Items 35%				$689,200
Engineering Design & Construction Contingency 25%				$664,600
Total				**$3,322,975**
Say				**$3,320,000**

Appendix L

Cheyenne City Council Resolution to Adopt E. Pershing Plan

Approved as to form only:
Dan White
Date: June 17, 2009

RESOLUTION NO. 5146

ENTITLED: "A RESOLUTION ACKNOWLEDGING RECEIPT OF AND APPROVING THE 'EAST PERSHING BOULEVARD CORRIDOR AND INTERSECTIONS PLAN' PREPARED BY AYRES ASSOCIATES FOR THE CHEYENNE METROPOLITAN PLANNING ORGANIZATION."

WHEREAS, the City of Cheyenne is progressing with the long-term plan for reconstructing Pershing Boulevard between I-25 and Converse Avenue; and

WHEREAS, improvements to the Pershing/Converse/19th intersection were recommended as a need in PlanCheyenne; and

WHEREAS, the voters have approved monies from the FY '03 - '06 and the FY '07 - '10 Optional One Percent Sales Tax for the design and/or construction of the Pershing/Converse/19th intersection and the corridor between Dunn and Converse Avenues; and

WHEREAS, the Cheyenne Metropolitan Planning Organization (MPO) Policy Committee has programmed Federal Funds from the Surface Transportation Program – Urban funding source for the reconstruction of the Pershing/Converse/19th intersection; and

WHEREAS, the Cheyenne MPO has completed numerous studies for the Pershing/Converse/19th intersection, including the most recent from October, 2005, prepared by LSA and Associates, Inc., which recommended the Modern Roundabout as the preferred alternative for the intersection; and

WHEREAS, the Cheyenne MPO hired Ayres Associates to prepare the *East Pershing Boulevard Corridor and Intersections Plan* to combine the planning for East Pershing Boulevard between Dunn and Converse Avenues and the intersection of Pershing/Converse/19th; and

WHEREAS, the *East Pershing Boulevard Corridor and Intersections Plan* was prepared with citizen participation received from two public meetings and one corridor walk, a website, numerous communications through the U.S. and electronic mail, and newspaper advertisements; and

WHEREAS, a Cheyenne City Council Worksession for the *East Pershing Boulevard Corridor and Intersection Plan* was held on May 7, 2009; and

WHEREAS, the City of Cheyenne Planning Commission held a Public Meeting on May 18, 2009, and accepted public comments, and recommended the approval of *The East Pershing Boulevard Corridor and Intersection Plan* to the City Governing Body; and

WHEREAS, the Cheyenne MPO Citizens Advisory and Technical Committees have reviewed the *East Pershing Boulevard Corridor and Intersections Plan* and have recommended its adoption.

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

THAT, the City of Cheyenne Governing Body hereby acknowledges receipt of and approves the *"East Pershing Boulevard Corridor and Intersections Plan"* dated May, 2009 prepared by Ayres Associates.

BE IT FURTHER RESOLVED, that the Governing Body recommends that the *East Pershing Boulevard Corridor and Intersections Plan* be used as the guideline for the design and reconstruction of the East Pershing Boulevard corridor and the intersections including Pershing/Converse/19th.

PRESENTED, READ AND ADOPTED THIS 13th **DAY OF** July, **2009.**

Richard L. Kaysen, Mayor
City of Cheyenne

(Seal)

ATTEST:

Carol A. Intlekofer

Carol A. Intlekofer, City Clerk