Draft Report for

Evaluation of Alternatives Report

Southwest Longmont Operations Study

Longmont, CO

November 2018

Prepared for:

CITY OF LONGMONT COLORADO

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Southwest Longmont Operations Study

Prepared for City of Longmont

Introduction

The *Southwest Longmont Operations Study* has been initiated to advance planning to address future demands on Longmont's multimodal transportation system in the southwest part of the City. Specifically, the study examines the arterial roadway network formed by Ken Pratt Boulevard, Hover Street, and Nelson Road, including major intersections along these roadway corridors. The study area is depicted in **Figure 1**. The purpose of the study is to identify needed intersection, transportation system, and multimodal improvements, supported by concept-level designs and cost estimates to incorporate into the City's implementation plans for future construction.

This *Evaluation of Alternatives Report* is a supporting document to the overall *Southwest Longmont Operations Study*. It includes evaluation of alternatives to address the issues identified in the *Existing Conditions and 2040 Baseline Analysis Report.* This report will also include further study and evaluation of each presented alternative. The information contained in this report will provide a basis for identifying preferred methods of meeting future demands to be included in Longmont's Capital Improvements Program.

Next Steps. Building on the findings from the evaluation of alternatives, the project will enter the process of developing the Final Recommendations Report based on the results of this report.

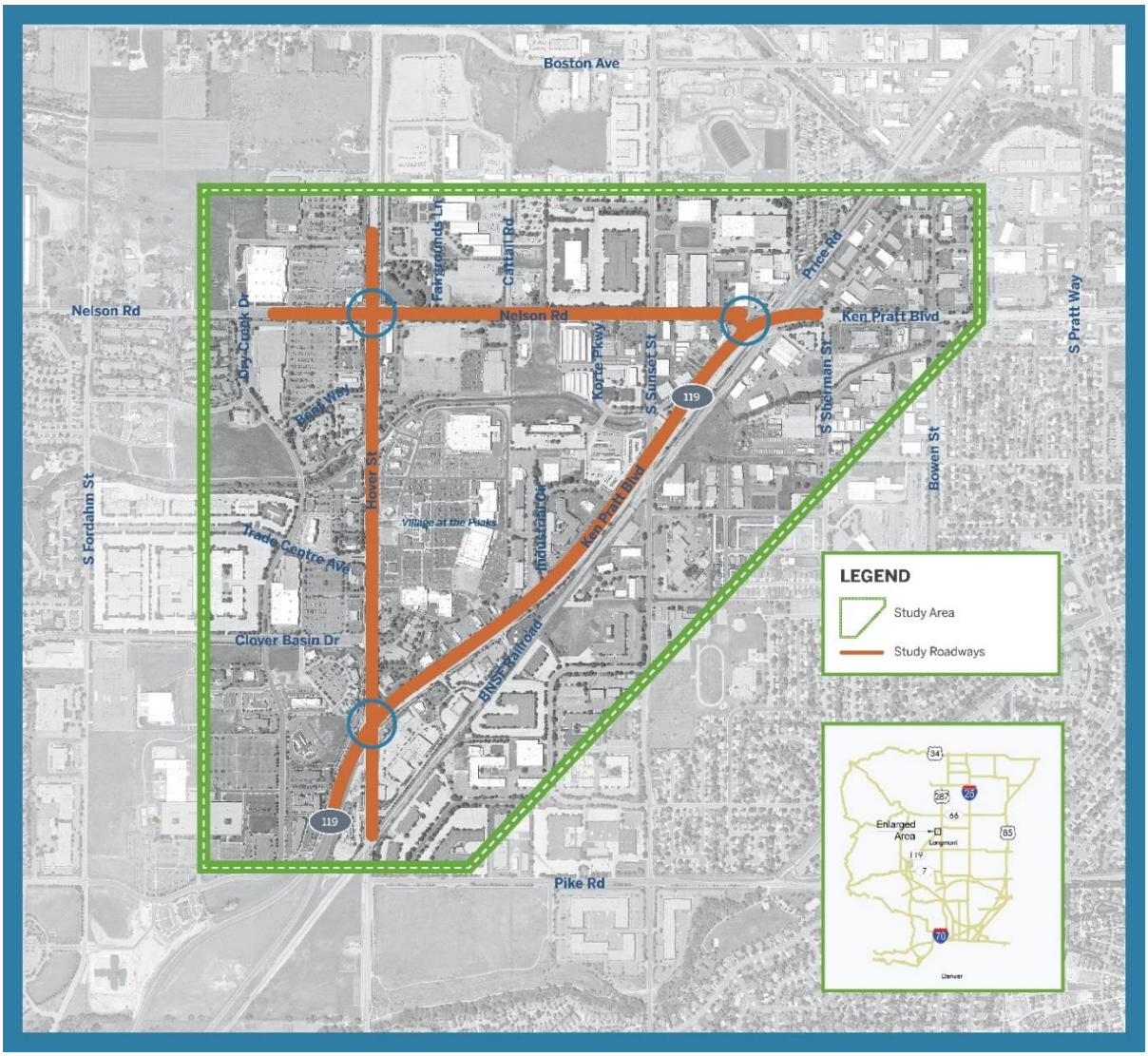
Study Area

The study area for this study, shown in **Figure 1**, is located in southwest Longmont. Ken Pratt Boulevard, Hover Street, and Nelson Road outline the study area creating a triangle. These corridors were studied for improvements along with Sunset Street which is within the study area and included as part of this study. Specific alternatives were developed for the following seven signalized intersections:

- Ken Pratt Boulevard & Hover Street;
- Ken Pratt Boulevard & Sunset Street;
- Ken Pratt Boulevard & Nelson Road;
- Hover Street & Clover Basin Drive;

- Hover Street & Bent Way;
- Hover Street & Nelson Road; and
- Nelson Road & Sunset Street.

Figure 1– Study Area



Study Goals

Study goals for developing alternatives include:

- Improve mobility and reliability of the system;
- Improve congestion and safety;
- Consider all modes of transportation; and
- Consider comments and suggestions from public involvement process.

Ken Pratt Boulevard

Ken Pratt Boulevard is classified as a non-rural principal highway (CDOT classification NR-A) within the study area. The corridor through the study area has existing continuous detached sidepaths. The corridor serves as a commuter corridor with limited access making the goals for this corridor primarily operations and mobility.

Hover Street

Hover Street is a major arterial through Longmont. It includes multiple accesses to commercial properties. Public involvement responses included concerns that Hover Street was not pedestrian or bike friendly despite having detached sidepaths to multiple commercial destinations. Goals for this corridor include a balance of vehicle operations and improved multi-modal operations and safety including developing pedestrian and bicycle facilities.

Nelson Road

Nelson Road is a four lane divided east-west arterial. It accommodates bike lanes and sidepaths inconsistently along the length of the corridor within the study area. It includes multiple accesses to commercial properties as well as business districts and fairgrounds. The primary objective for this corridor includes continuity of the pedestrian and bicycle facilities with vehicle operations secondary.

Sunset Street

Sunset Street is a Primary Collector. It includes multiple accesses to commercial properties. Public involvement responses included concerns about missing links in bike facility connections in the area. A goal of the proposed improvement is to provide connectivity of bicycle facilities.

Public Involvement

The public was invited to attend an open house to learn about the study and comment on findings of the *Existing Conditions & 2040 Baseline Analysis Report* and to provide feedback regarding the issues the public perceives throughout the study area. The Open House was held at the City of Longmont's Sunset Campus from 4:30 PM to 6:30 PM on April 5, 2018. Comments were solicited on maps and on comment sheets. Additionally, an online comment period was

open to the public through May 11, 2018. From these comments, multiple concerns were brought up. The most common of these are listed below. An overall summary of public comments is found in **Appendix A.**

- Hover Street: Congested, feels unsafe for pedestrian and bicyclists, signal timing could be better
- Ken Pratt Boulevard: Uncomfortable to cross as a pedestrian or bicyclist, congested.
- Nelson Road: Access control, missing sidewalks
- Sunset Street: Add bike facility and implement road diet
- Maneuvering from westbound Ken Pratt to northbound Hover to westbound Clover Basin has a difficult weave in a short distance.
- Hover & Clover Basin: Heavy northbound left turn movement onto Clover Basin, difficult to turn onto Hover because of the heavy right turn movement from southbound Hover onto Ken Pratt backing up through the intersection.
- Ken Pratt & Sunset: Exclusive right and left turn lanes are needed.
- Ken Pratt & Hover: Congestion, consider overpass/underpass ramps for left turning vehicles. (Left and right turns in general were a concern), difficult crossing for pedestrians and bicyclists.
- Multi-Modal (General): Safer pedestrian and bicycle crossings along Hover Street, more connections available at the mall, as well as bike to transit connections

Need for Improvements

The area within the Ken Pratt Boulevard, Hover Street, and Nelson Road triangle is an important commercial destination and business district in the City of Longmont. Transportation improvements are needed to address operations, safety, and multimodal connectivity.

Traffic Operations and Safety

Existing and Year 2040 traffic volumes and levels of service for each intersection in the study area are illustrated in **Appendix B** at the end of the report.

- Ken Pratt Boulevard serves as an expressway (CDOT classification E-X) just west of the intersection serving a large number of commuters between Longmont and Boulder.
- Peak hour traffic operations are congested at Ken Pratt Boulevard and Hover Street, with low average travel speeds, poor levels of service, high potential of crash reduction, and long vehicle queues.
- The intersection of Hover Street and Clover Basin Drive has a high frequency of injury crashes, as well as a high volume of northbound left turns during the PM peak hour.

With a short distance weave for westbound right turners from Ken Pratt Boulevard trying to make the left turn.

- A large volume of right turners at Hover Street and Clover Basin Drive exists for eastbound Clover Basin to Southbound Hover and likewise from southbound Hover to westbound Clover Basin.
- The intersection of Ken Pratt Boulevard and Sunset Street operations are congested with poor levels of service during the PM peak hour.
- The intersection of Hover Street and Nelson Road has a high crash frequency, poor levels of service, and long vehicle queues in the PM peak hour. There are also high volumes of left turns during the PM peak from eastbound Nelson to northbound Hover and likewise from southbound Nelson to eastbound Hover.
- The Hover Street and Bent Way intersection has a high frequency of crashes.
- A large number of right turn movements are made from westbound Ken Pratt Boulevard at Nelson Road.

Multimodal Connectivity

- The Nelson Road corridor has varying degrees of multimodal accommodations, from marked bike lanes, to no sidewalk.
- Hover Street corridor has multiple uncontrolled accesses as well as long pedestrian crossing distances that intensify the level of stress of bicyclists and pedestrians along the corridor.
- Sidewalk widths and availability are inconsistent, bicycle lanes and facilities are limited, and wide arterial intersections discourage pedestrian and bicycle activity.

Alternatives Evaluation

Alternatives throughout the study area were developed to address the study goals including deficiencies identified in the *Existing Conditions and Baseline Analysis Report* and to incorporate feedback received from Longmont citizens at the April 2018 Open House. The following describes the major categories by which each alternative is measured.

Vehicle Traffic Operations. Operational analyses were conducted for each intersection alternative. To evaluate the operational performance of each alternative, measures of effectiveness (MOE) such as average delay per vehicle, intersection Level of Service (LOS), arterial LOS, and average queue lengths were acquired from Synchro/SimTraffic (Version 9.1, build 904, revision 125) traffic analysis software. The Synchro/SimTraffic software package uses criteria described in the Highway Capacity Manual, 2010 Edition (HCM 2010). SimTraffic microsimulation was primarily used to analyze LOS, vehicle delay and average queue lengths. The alternatives were evaluated based on its ability to accommodate 2040 project volumes.

Vehicle delay in seconds per vehicle translates into LOS which is typically reported for ease of reference. LOS is a measure used to describe operational conditions at an intersections. LOS categories ranging from A to F are assigned based on the predicted delay in seconds per vehicle for the intersection as a whole and for individual turning movements. LOS A indicates very good operations, while LOS F indicates poor, congested operations.

Additionally, the City of Longmont has a benchmark for vehicle operations. The benchmark states that that objective traffic operations for all intersections is LOS D or better. For individual movements, the objective is also LOS D or better if that movement volume comprises 5% or greater of the total entering volume. An LOS that does not meet the City's benchmark is considered failing or unacceptable. **Figure 2** and **Figure 3** Show Existing and 2040 Traffic Volumes.

Safety. A safety study was conducted as part of the *Existing Conditions and 2040 Baseline Analysis Report* that identified safety hot spots within the study area and where improvements may be able to mitigate some of the safety issues. Intersections were rated with level of service of safety (LOSS). LOSS range from I-IV where a LOSS I indicates low potential for crash reduction and LOSS IV indicates a high potential for crash reduction. Each alternative will be measured by the crash reduction potential and how well it reduces potential multi-modal conflicts. **Figure 4** shows the 5-year crash history.

Cost and Construction Feasibility. This evaluation will offer the City of Longmont the ability to choose the alternative that best fits the goals of the project while also taking into account fiscal requirements and impacts of construction on the community.

Right-of-Way. Another area assessed was right-of-way impacts. In addition to general right-of-way impacts like property acquisition and parking lot impacts, an assessment was conducted to determine the ability to preserve the existing access accommodations in the area. This included determining whether each alternative maintained the existing movements, and whether surrounding properties were adversely impacted. A property impact was based on any loss of

parking, removal or limitation of access, or whether the entire parcel, including the buildings, are impacted.

Multi-Modal Accommodations. Multi-modal improvement capability by each alternative were evaluated. Each intersection was evaluated determine whether any multi-modal improvements to the existing network were achieved, even if multi-modal capability was not a high priority at the particular location. Improvement examples include shortened pedestrian crossing distances and completing a missing link in the bike network.

Preliminary Alternatives Screening

A wider range of alternatives were initially considered. A preliminary evaluation was conducted to screen alternatives that, through discussions with the City, did not meet the study goals. The purpose of the preliminary screening was to identify a range of improvements that could meet the visions and goals of the project while eliminating concepts from consideration that do not.

Preliminary Evaluation Criteria

During the preliminary screening, the initial improvement concepts were qualitatively assessed, primarily using professional judgment of the project engineering and planning staff, consistent with other similar regional projects. The initial improvement concepts were evaluated based on the following preliminary evaluation criteria.

Operations

This factor considers the ability of the concept to provide both regional mobility and local access while improving existing and future traffic operations for key movements through the corridor area.

Safety

This factor considers the concept's ability to improve safety, and reliability for key movements through the corridor area.

Preliminary Screening Evaluation

Below are alternatives that were considered, but not carried forward based on the preliminary evaluation criteria iterated in the section above.

Ken Pratt & Hover

Multiple alternatives were evaluated for this location, a few options that were eliminated based on operations a safety include:

Partial Displaced Left Turn with Roundabout South of the Intersection

This alternative included the Partial Displaced Left Turn (PDLT) configuration with the addition of a roundabout at the Oskar Blues and The Village at Burlington entrance intersection. This

alternative did not make it past the operations screening due to the proximity of the roundabout with the existing railroad crossing just south of the intersection.

Single Point Urban Interchange with Roundabout

This alternative included the Single Point Urban Interchange (SPUI) configuration with the addition of a roundabout instead of signalized intersection. This alternative did not make it past the operations screening since the roundabout contained a 3-lane section that would potentially exacerbate driver confusion with multiple lane roundabouts as well as not being conducive to pedestrian and bicycle traffic.

Ken Pratt & Nelson

A roundabout was developed for this intersection to combine Nelson Road, Price, and Ken Pratt approaches into one intersection. The roundabout would require three lanes in order to meet the operational criteria, which may prove difficult to navigate. The roundabout would be operationally deficient located between two other signals in coordination along an arterial and additional concerns arise due to the proximity of the BNSF railroad.

Hover & Nelson

One of the potential alternatives developed for this intersection was a partial displaced left turn intersection. While the operational analysis showed a vast improvement to LOS with this alternative; the results of the footprint included multiple commercial impacts, as well as sidewalk and pedestrian impacts. The vision for Nelson Road includes incorporating multi-modal accommodations with continuous bike lanes. The partial displaced left turn intersection was eliminated as it is not conducive to bike or pedestrian traffic safety.

Alternatives Evaluation

The traffic operations of the alternatives were analyzed using Synchro/SimTraffic analysis software and Highway Capacity Manual methods to compare information about corridor operations and capacity of the alternatives. The safety effects of alternatives were evaluated based on improvements to the intersection. The potential physical impacts of the alternatives, such as right-of-way, were identified based on a conceptual design level of detail.

Alternative Evaluation Criteria

Performance measures were developed for each evaluation criterion to compare how well each alternative meets the vision and goals of the project. The performance measures are a mix of qualitative and quantitative assessments, based on the criteria and the availability of data at this stage of analysis.

The color ratings shown with the performance measures are related to the colors provided in the Alternative Screening Matrix in Appendix D. The ratings were used as a visual indication of the comparative characteristics of a criterion between alternatives, but not used as an indication of a decision (i.e., an alternative with many “red” ratings was not automatically rendered unreasonable). The colors are a general indication of whether the alternative favorably achieved

the established criteria (green), had neutral impacts to the criteria (black), or poorly achieved the criteria/had negative impacts (red). The quantitative and qualitative ratings were based on industry standards or on a relative scale developed by the project team.

The alternatives were compared to determine how well each alternative met the evaluation criteria and performance measures described below.

Traffic Operations

Level of Service and Delay

Level of Service (LOS) and Delay for each alternative and respective corridors as a network for the AM and PM peak hours.

Rating:

- Green = Intersection LOS D or better during peak hour as well as LOS D or better for any movement that comprises 5% of the total entering volume.
- Black = Intersection LOS D while allowing individual movements that comprise 5% of entering volume to be LOS E of LOS F.
- Red = LOS E or F during the peak hour.

Total Network Delay

Total network delay measures how well an alternative fits within the study area where all other intersections are modeled with improvements. Therefore, this criteria is evaluated such that the alternatives are measured relative to each other. Total network delay (hours) along each respective corridor for the AM and PM peak hours.

Rating:

- Green = Total network delay is between 320 to 360 hours.
- Black = Total network delay is between 361 to 400 hours.
- Red = Corridor peak hour delay increased compared to the No Action peak hour.

2040 Peak Hour Queue Lengths

Queue lengths (feet) on approaches to intersections for the AM and PM peak hours.

Rating:

- Black = Queue lengths are not expected to encroach on adjacent intersections.
- Red = Queue lengths are expected to encroach on adjacent intersections.

Safety

Potential Vehicular Safety Benefits

Potential for vehicular crash reduction at the intersection

Rating:

- Green = Alternative expected to provide notable reduction in vehicular crashes.
- Black = Alternative expected to provide moderate reduction in vehicular crashes.
- Red = Alternative expected to provide minimal to no reduction in vehicular crashes and safety concerns.

Multimodal Conflict Reduction

Ability of the alternative to reduce the number of potential multimodal conflict points.

Rating:

- Green = Notable reduction in multimodal conflict points.
- Black = Minimal to no reduction in multimodal conflict points.
- Red = Increase in multimodal conflict points.

Multimodal Improvements

Pedestrian/Bicyclist Connections

Continuous sidewalk and/or paths and pedestrian/bicyclist intersection treatments to enhance and encourage pedestrian and bicyclist activity.

Rating:

- Green = Notable improvements to pedestrian/bicyclist connects along the corridors and throughout the study area.
- Black = Maintain existing level of pedestrian/bicyclist connections along the corridors and throughout the study area.
- Red = Introduces deficiencies that make it more difficult for people to walk or bike along the corridors compared to the No Action.

Pedestrian/Bicycle Movement Comfort and Safety

Evaluation of user perception based on crossing distance and refuge areas at roadway crossings and operational characteristics of pedestrian and bicycle facilities.

Rating:

- Green = Alternative generally feels comfortable for pedestrians and bicycle movements along and across each corridor.
- Black = Minor improvement at some locations, but key characteristics make the alternative feel uncomfortable or intimidating.
- Red = Key characteristics make the alternative feel notably uncomfortable or intimidating.

Transit Connections

The evaluation of this criteria is twofold and measures whether the alternative precludes the addition of transit improvements in the future or significantly increases delay of existing transit operations.

Rating:

- Green = Provides numerous opportunities for improvements to be worked into the design of the alternative and is expected to improve transit travel times.
- Black = Minimal opportunities for transit improvements to be worked into the design of the alternative and does not significantly impact transit travel times.
- Red = Precludes transit improvement opportunities and/or is expected to cause significant delay in transit travel times.

Right of Way

Right of Way (ROW) Required (Acres)

Acres of property with acquisition of property expected based on alternative conceptual layout.

Rating:

- Green = Less than one acre of permanent property acquisition anticipated.
- Black = One – 10 acres of permanent property acquisition anticipated.
- Red = More than 10 acres of permanent property acquisition anticipated.

Right of Way (ROW) Required (Number of Properties)

Number of property with acquisition of property expected based on alternative conceptual layout.

Rating:

- Green = Less than 10 properties with permanent property acquisition anticipated.
- Black = 10 – 25 properties with permanent property acquisition anticipated.
- Red = More than 25 properties with permanent property acquisition anticipated.

Property Access Impacts

Evaluation of property access impacts due to access movement restrictions or traffic controls based on alternative conceptual layout.

Rating:

- Green = No impacts to properties.
- Black = Moderate impacts to properties with changes to allowable movements at accesses.
- Red = Major impacts to properties with property access closures.

Consistency with Established Local and Regional Plans

Evaluation of consistency of alternative elements with documented planning efforts for the area transportation system and surrounding land use.

Rating:

- Green = Consistent with established local and regional plans.
- Red = Not consistent with established local and regional plans.

Cost and Feasibility

Conceptual-level Probable Construction Costs

General evaluation (low, moderate, high) based on major cost items of the alternative conceptual layout.

Rating:

- Low (Green) = Relative low costs.
- Moderate (Black) = Relative moderate costs.
- High (Red) = Relative high costs.

Constructability

Evaluation of general construction complexity and difficulty from contractor perspective.

Rating:

- Easy (Green) = Typical construction mostly outside of existing roadway area.
- Moderate (Black) = Moderate construction within tightly constrained area.
- Difficult (Red) = Major construction complexity and staging area issues within tightly constrained area.

Ability to Construct in Phases

Evaluation of the ability to construct useful portions of the improvements as separate projects over a phased implementation period.

Rating:

- Easy (Green) = Opportunities for useful portions to be implemented separately.
- Moderate (Black) = Opportunities for implementation of useful portions as separate projects, but with limited benefits or potential issues with increased cost/processes.
- Difficult (Red) = Useful portions difficult to implement in pieces due to large cost/processes.

Use of Existing Infrastructure

General evaluation of the ability to maximize the use of existing transportation infrastructure.

Rating:

- Green = Substantial use of existing infrastructure.
- Black = Moderate use of existing infrastructure.
- Red = Major increase in new infrastructure.

Alternatives Screening Evaluation

The detailed Alternatives Screening Matrix can be found in **Appendix C** for all study area intersections. Based on the alternatives evaluation, most of the alternatives for each intersection, were found to meet the vision and goals of the project with minimal environmental and community impacts.

The improvement alternatives for each intersection, as described in the Summary of Conclusions section, illustrate the highest scoring alternatives for consideration toward developing an overall preferred alternative. Public comments on the draft recommendations were focused on traffic operation and bicycle & pedestrian improvement needs.

INTERSECTION ALTERNATIVES

Ken Pratt Boulevard and Hover Street

Introduction

General

Based on future projected traffic volumes contained in the Existing Conditions and 2040 Baseline Analysis Report, Ken Pratt Boulevard is expected to have approximately 31,000 veh/day and Hover Street 46,000 veh/day near the intersection. The intersection is a southwest entry into the City of Longmont with large commercial, medical, and business districts located at or near the intersection. Both roads are used heavily by commuters and local traffic alike making traffic operations and mobility paramount.

Ken Pratt Boulevard (SH 119) is a divided four lane non-rural principal highway (CDOT classification NR- A) that connects Boulder and Longmont at an angle, also known as the Diagonal Highway. Hover is a major north-south arterial that runs from Interlocken Loop in Broomfield to SH 66 in Longmont. At the intersection Hover drops from a five lane divided arterial to four lanes heading south. Raised medians are found on the north leg of Hover and the east leg of Ken Pratt. The south leg of Hover includes a two-way-left-turn-lane (TWLTL). The west leg of Ken Pratt is classified as an expressway (CDOT classification E- X) and has a painted median coming out from a median. Points west and south of the intersection are rural areas of Boulder County.

Problem Statement

Presently, the LOS for this intersection operates at LOS D/F for AM/PM traffic, and is projected to degrade to LOS F/F in the year 2040. Furthermore, as a result of the Safety Study performed by DiExSys, the intersection presently has a Level of Service of Safety (LOSS) IV for both frequency and severity. There is a crash pattern showing elevated rear end crashes and approach turn crashes. This crash pattern suggests a problem with congestion at the intersection, the low LOS at this location confirms this.

Background Analysis

Crash Data

During the study period, 132 crashes were reported at or related to the intersection with 44 of those crashes involving injuries and at total of 62 people reported as injured. There were no fatal crashes at the intersection during the study period.

Rear end was the most common type, followed by Approach Turn (Left turning vehicle collides with opposite direction vehicle). Rear end collisions may simply reflect congestion at this intersection but countermeasures including improved signal coordination or decision zone protection may be made.

The intersection performs at LOSS-IV from the crash frequency standpoint, reflecting **high potential for crash reduction**.

Traffic Operations

Presently, the intersection is failing, operating at LOS D in the AM peak hour and LOS F in the PM peak hour. The eastbound movement in the PM peak hour has a queue length of 2,011 feet. Future 2040 traffic operations for the intersection without any improvements result in an overall failure of the intersection with LOS F for both peak hours resulting in a PM peak hour delay of over five minutes, and queue lengths in the PM peak for eastbound traffic stretching more than a mile long, see **Table 1** for the Level of Service comparison.

Table 1: Ken Pratt & Hover Level of Service

	EXISTING		2040 NO ACTION	
	AM	PM	AM	PM
LOS	D	F	F	F
DELAY	44.0	119.9	164.8	332.4

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.

Budgetary Cost Estimate: There is no cost assumed to design and construct this alternative.

Alternative 1 – Conventional Full-Build

This intersection includes a conventional layout, maintaining the existing location. It offers added capacity with three through lanes in all directions. The northbound, southbound, and westbound directions all include double left-turns while the eastbound accommodates triple left-turns. The intersection includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Three exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.

Figure 5 displays the proposed layout for Alternative 1.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $5.2 million and $7.5 million.

Preservation of Existing Access Accommodations

The conventional alternative adds through and left turn lanes expanding the footprint and modifies the islands thusly, all of the current intersection movements are maintained. In addition, while the design option impedes some private property, most of the property impacted is within the existing right of way, all of the existing accesses near the intersection are maintained.

Conclusion: While some property acquisitions are required, no impacts to existing access are anticipated as a result of this alternative.

Alternative 1a – Westbound Grade Separated

Similar to Alternative 1 described above, this intersection is a conventional layout with the exception of an overpass/underpass for westbound through traffic. The footprint for this alternative is capable of maintaining the existing location. The westbound overpass/underpass relieves eastbound approach turn accidents and may allow for an ongoing eastbound left turn phase. It offers added capacity with three through lanes in all directions. The northbound, southbound, and westbound directions all include double left-turns while the eastbound accommodates triple left-turns. The intersection includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Three exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.

Figure 5 displays the proposed layout for Alternative 1a.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $12.4 million and $18 million.

Preservation of Existing Access Accommodations

The conventional alternative adds through and left turn lanes expanding the footprint and modifies the islands thusly, all of the current intersection movements are maintained. In addition, while the design option impedes some private property, most of the property impacted is within the existing right of way, all of the existing accesses near the intersection are maintained.

Conclusion: While some property acquisitions are required, no impacts to existing access are anticipated as a result of this alternative.

Alternative 1b – Eastbound Grade Separated

Similar to Alternative 1, this alternative is a conventional layout with the exception of a overpass/underpass for eastbound through traffic. The footprint for this alternative is capable of maintaining the existing location. The eastbound overpass/underpass relieves westbound approach turn accidents and may allow for an ongoing westbound left turn phase. It offers added capacity with three through lanes in all directions. The northbound, southbound, and westbound directions all include double left-turns while the eastbound accommodates triple left-turns. The intersection includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Three exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.

Figure 5 displays the proposed layout for Alternative 1b.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $14.5 million and $21 million.

Preservation of Existing Access Accommodations

The conventional alternative adds through and left turn lanes expanding the footprint and modifies the islands thusly, all of the current intersection movements are maintained. In addition, while the design option impedes some private property, most of the property impacted is within the existing right of way, all of the existing accesses near the intersection are maintained.

Conclusion: While some property acquisitions are required, no impacts to existing access are anticipated as a result of this alternative.

Alternative 2 – Partial Displaced Left Turn (PDLT)

This intersection includes an innovative design to accommodate capacity with a Partial Displaced Left-Turn (PDLT) with the movements being displaced in the east and west directions. A PDLT is an FHWA approved alternative intersection that has shown potential to improve intersection efficiency up to 40%, delaying the need for grade separation. Two additional traffic signals are required at the crossover points in the east and west directions.

FHWA describes the Partial DLT: *"For this alternative, left-turning vehicles are removed from conflict at the main intersection by having them move across the opposing through traffic stream at a signal-controlled crossover 300 to 400 feet upstream of the main intersection"*

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.

Figure 6 displays the proposed layout for Alternative 2.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $6.8 million and $9.9 million.

Preservation of Existing Access Accommodations

The Partial DLT alternative reconfigures the intersection for eastbound and westbound traffic. The footprint is skewed north on the west side and medians are added to maintain traffic control for opposing movements. All of the current intersection movements are maintained. In addition, while the design option impedes some private property, most of the property impacted is within the existing right of way, all of the existing accesses near the intersection are maintained.

Conclusion: While some property acquisitions are required, mostly frontage property with landscaping, no impacts to existing accesses are anticipated as a result of this alternative.

Alternative 3 – Median U-Turn

This intersection incorporates a Median U-Turn (MUT) for the east and west directions. The MUT is another FHWA approved alternative intersection design. The MUT eliminates left-turn traffic in the intersection, replacing it with and indirect left-turn using the U-turn movement in a

wide median. The MUT is efficient in reducing signal phases and conflict points at the intersection.

A vehicle wanting to make a left-turn movement would move through the intersection, make a U-turn movement at a downstream directional crossover that is typically, as in this case, signalized. The addition of two signals at the median crossovers are included in this design.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: Two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two through lanes, and two exclusive right-turn lanes.
- Eastbound Approach: Three through lanes, and one exclusive right-turn lane.
- Westbound Approach: Three through lanes, and two exclusive right-turn lanes.

Figure 7 displays the proposed layout for Alternative 3.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $7.5 million and $10.9 million.

Preservation of Existing Access Accommodations

The MUT reconfigures the intersection eliminating left-turns for all approaches. Medians and islands are added and improved to maintain the desired traffic control. Left-turning vehicles are accommodated by a signal with accompanying U-turn movements on the east and west legs of the intersection. In addition, while the design option impedes some private property, most of the property impacted is within the existing right of way.

The 1st Bank right-in access in the northeast corner off Ken Pratt would be eliminated. Bank traffic may utilize other existing full accesses for the Twin Peaks Mall located on Ken Pratt Boulevard and Hover Street & Clover Basin Drive through the existing interior roadway circulation.

The existing Right-In-Right-Out (RIRO) access on the southeast corner would upgrade to a ¾ access with the improvements of the median with a signal allowing the U-turn movements necessary for the proposed intersection.

Conclusion: Some property acquisitions are required, mostly frontage property with landscaping. One right-in access is eliminated as a result of this alternative to accommodate the bulb out for U-turn movements. Additionally, an existing RIRO access on the southeast corner will be upgraded to a ¾ access as a result of the signal for the U-turn incorporated for this alternative.

Alternative 4 – City of Longmont Continuous Flow Intersection (CFI)

This intersection includes a City of Longmont Continuous Flow Intersection. The intersection entails elements from both the PDLT and MUT. For this intersection, the eastbound direction utilizes the PDLT configuration, while the MUT alternatives are used in all of the other

directions. This alternative eliminates left-turn movements from the primary intersection, taking away those conflict points there.

A northbound vehicle wanting to make a left-turn would turn right onto Ken Pratt and then make a U-turn east of the intersection at a designated signal, and continue through the intersection heading west. A southbound vehicle wanting to make a left-turn would go through the intersection and then make a right-turn onto the loop south of the intersection, positioning the vehicle to head eastbound through the intersection. An eastbound vehicle wanting to make a left-turn would go through the intersection and make a U-turn east of the intersection at a designated signal, then turn right onto Hover Street. A westbound vehicle wanting to make a left-turn would go through the intersection and turn left at a designated signal west of the intersection positioning the vehicle southbound.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: Two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two through lanes, and one shared through / right-turn lane.
- Eastbound Approach: Three through lanes. (Right-turns accommodated prior to the intersection).
- Westbound Approach: Two through lanes, and one exclusive right-turn lane.

Figure 8 displays the proposed layout for Alternative 4.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $6.4 million and $9.3 million.

Preservation of Existing Access Accommodations

The City of Longmont Continuous Flow Intersection reconfigures the intersection eliminating left-turns for all approaches. Medians and islands are added and improved to maintain the desired traffic control. Left-turning vehicles are accommodated by signalized U-turn movements on the east and west legs of the intersection. The design option impedes some private property, mostly landscaped areas, but impacting the southwest and northwest corners of the intersection. The southwest corner is an outfall and bike and ride and bike share facility and needs to be mitigated thusly. Existing access is maintained around the intersection.

Conclusion: Property acquisitions are required, mostly frontage property with landscaping. The southwest corner will require redesign for the outfall, and mitigation for the bike and ride and bike share facility. All existing accesses are maintained as a result of this alternative.

Alternative 5 – Grade Separated Interchange

This alternative is one of three designs to incorporate a grade separated interchange. The interchange will operate similarly to a diverging diamond and partial displaced left-turn. Ken Pratt is either and underpass or overpass with Hover Street allowing free flow through traffic. A signal on Hover Street coordinates northbound and southbound traffic along with left and right

turners onto Hover Street. Two signals along Ken Pratt, on either side of the intersection, allow the displaced left-turn function of the intersection design.

- Northbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane one exclusive right-turn lane.

Westbound and Eastbound intersection configurations:

- East
    - Eastbound: Two through lanes.
    - Westbound: Two left-turn lanes (to accommodate left and right turners onto Hover Street) and two through lanes.
- West
    - Eastbound: Two left-turn lanes (to accommodate left and right turners onto Hover Street) and two through lanes.
    - Westbound: Two through lanes.

Figure 9 displays the proposed layout for Alternative 5.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $25.6 million and $37.1 million.

Preservation of Existing Access Accommodations

The grade separated interchange with Partial DLT alternative reconfigures the intersection. The footprint is skewed north on the west side and medians are added to maintain traffic control for opposing movements. All of the current intersection movements are maintained. While this design option has the greatest private property impacts, they are mostly within the sidewalk and beautification areas. Sidewalk is to be replaced as part of this project and maintain continuity of the facility. All existing accesses near the intersection are maintained.

Conclusion: While property acquisitions are required, they include mostly frontage property with landscaping, no impacts to existing access are anticipated as a result of this alternative.

Alternative 6 – Early Lefts

This alternative manages eastbound left and right turns by allowing them to exit Ken Pratt Boulevard and distributing them at the private road intersection just south of Ken Pratt

Boulevard on Hover Street. All eastbound left and right turners would use this early option to make their movements. The rest of the intersection would stay much the same.

- Northbound Approach: Two exclusive left-turn lane, three through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Three exclusive through lanes.
- Westbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.

Early Left intersection configuration:

- Northbound Approach: Two exclusive through lanes and one exclusive right-turn lane.
- Southbound Approach: One exclusive left-turn lanes and two through lanes.
- Eastbound Approach: Two exclusive left-turn lanes and one shared through-right lane.
- Westbound Approach: One exclusive left-turn lane and one exclusive right-turn lane.

Figure 10 displays the proposed layout for Alternative 6.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $5.7 million and $8.3 million.

Preservation of Existing Access Accommodations

Approximately 23 parking spots at Oskar Blues will be impacted as a result of this alternative. The proposed new roadway bisects the existing parking lot. However, as a result of this, the intersection with Hover and the access road will be signalized. No other impacts to access or private property are anticipated as a result of this alternative. All of the current intersection movements are maintained. All other impacts are mostly within the right of way. Sidewalk is to be replaced as part of this project maintaining continuity of the facility. All existing accesses near the intersection are maintained.

Conclusion: While property acquisitions are required and one commercial property parking lot is impacted, all other impacts include right of way property with landscaping and sidewalks, no impacts to existing access are anticipated as a result of this alternative.

Alternative 7 – Single Point Urban Interchange (SPUI)

This alternative is a Single Point Urban Interchange (SPUI) a grade separated interchange. This interchange includes two through lanes in both directions for Ken Pratt Boulevard that go through a tunnel beneath the intersection. Above a typical SPUI configuration for vehicles exiting Ken Pratt Boulevard to make left or right turns on Hover Street and all Hover Street movements at a single traffic signal are accommodated.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, three through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Figure 11 displays the proposed layout for Alternative 7.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $40.5 million and $58.8 million.

Preservation of Existing Access Accommodations

The grade separated interchange with SPUI alternative reconfigures the intersection. The footprint is wider for Ken Pratt approaches to the interchange. Access to the bank on the northeast corner is no longer available. To access that property customers would need to traverse the internal roadway network for the shopping center. The bank also has parking lot impacts with over 25 spots taken to accommodate the westbound movements of the SPUI. The Bike and Ride and bike share facility near Oskar Blues is also impacted to accommodate the new configuration. Properties on the northwest corner are also impacted for the SPUI with a shift north. Most of these impacts are to landscaping areas, sidewalk, and undeveloped properties. As part of this alternative the sidewalk facility is accounted for with a new alignment to accommodate bike and pedestrian traffic. Impacts on the south side mostly stay within the right of way and include improvements to the sidewalk. All movements are maintained at the intersection as a function of the SPUI.

Conclusion: The property on the northeast corner garners the most impacts with one access to Ken Pratt taken away and 25 parking spots impacted as part of this alternative. Other impacts seem to mostly stay within the existing right of way and mitigated through improvements.
Prioritization Criteria

Prioritization Criteria

Intersection Traffic Operation Analysis

The No Action alternative was analyzed as a baseline for the developed alternatives for comparison purposes. The results of the traffic operations analysis are illustrated in **Table 2** below. The analysis worksheets are contained in Appendix D for reference.

Table 2: Ken Pratt & Hover Intersection Traffic Operations

KEN PRATT & HOVER	INTERSECTION TOTAL OVERALL 2040 LOS		INTERSECTION QUEUE LENGTHS (FT)							
			SB		NB		WB		EB	
ALTERNATIVE	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NO ACTION	F	F	825	561	456	1259	748	301	2175	6264
1	C	F	128	181	123	169	125	138	83	1967
1a	C	D	137	207	123	188	0	0	90	284
1b	C	E	132	182	167	233	124	168	0	0
2	D	D	232	235	331	150	241	84	103	269
3	C	E	174	456	42	119	296	107	131	422
4	D	E	390	400	110	258	230	207	298	249
5	C	C	228	185	224	220	0	0	0	0
6	D	F	152	186	176	465	120	68	93	615
7	B	C	111	193	105	253	0	0	0	0

Network Traffic Analysis

The results of the corridor traffic operations analysis are illustrated in **Table 3**. The analysis worksheets are contained in Appendix D for reference. The analysis for this section represents how the alternative impacts the network as a whole, and not just limited to the intersection itself. For example, if traffic operations are poor at Ken Pratt / Hover Street, queues may form that encroach on adjacent intersections. The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Good traffic operations along the corridor indicate that the configuration at the Ken Pratt / Hover Street intersection do not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and Average Network Speed. The No Action alternative was analyzed as a baseline to compare the developed alternatives to. As a result the No Action average network speed is 15/7 mph for the AM/PM peak hours and the total network delay is 784.6 / 2,216.5 hours for the AM/PM peak hours respectively.

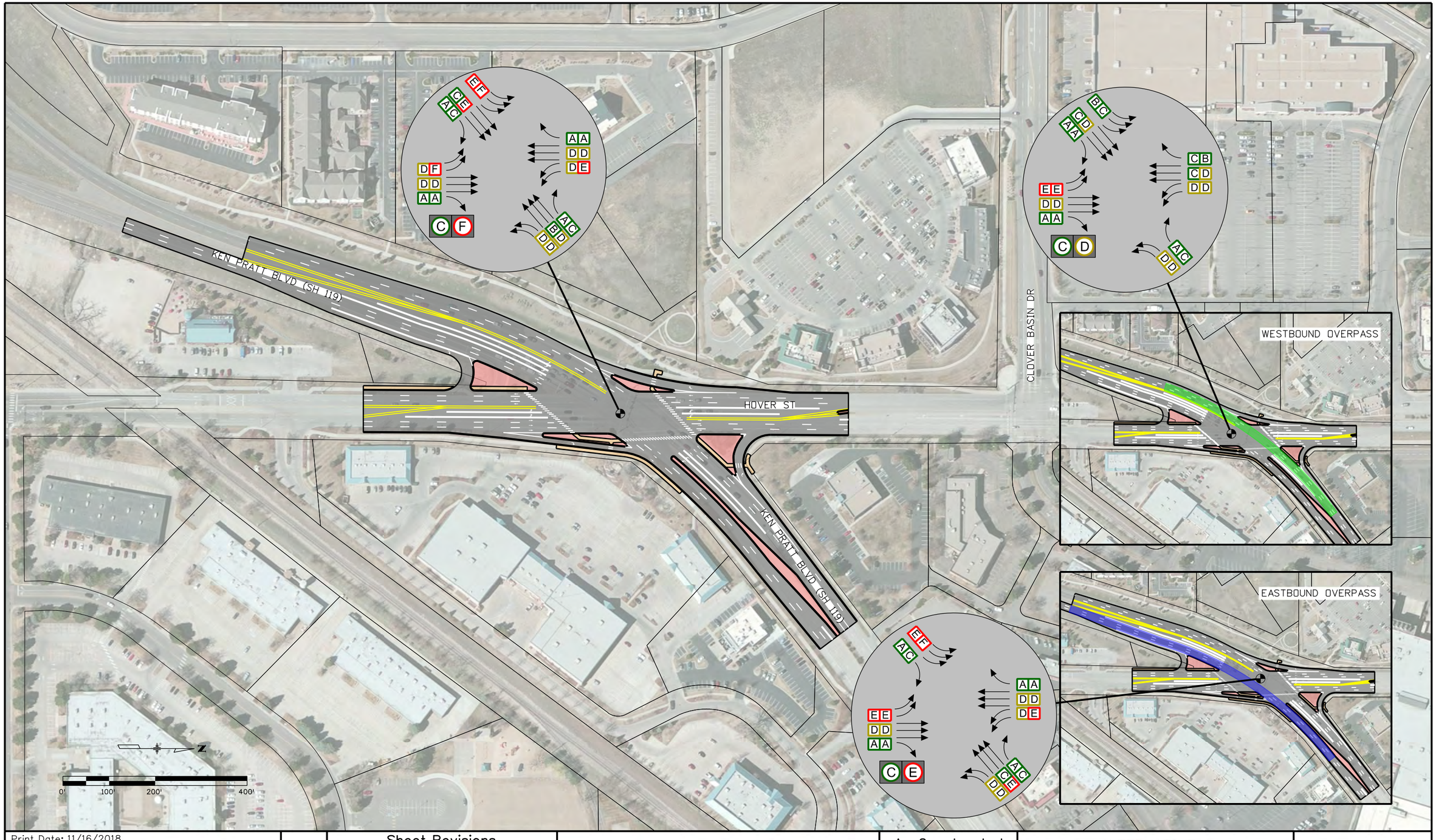
Table 3: Ken Pratt & Hover Network Traffic

KEN PRATT & HOVER	AVERAGE NETWORK SPEED (MPH)		TOTAL NETWORK DELAY (HR)	
ALTERNATIVE	AM	PM	AM	PM
NO ACTION	15	7	784.6	2216.5
1	22	17	158.0	400.9
1a	22	18	157.4	348.9
1b	22	17	162.0	359.3
2	21	18	179.2	356.7
3	21	18	189.5	377.4
4	22	17	170.1	397.6
5	22	18	158.8	358.5
6	22	18	140.5	331.5
7	21	16	187.1	427.2

The results indicated that 3 alternatives are slightly better than the others overall: 1a (Westbound Grade Separated); 5 (Grade Separated Interchange); and 7 (SPUI). These alternatives displayed the highest average network speeds and had relatively lower delay than the others.

Alternative Screening Evaluation

The comprehensive results of the alternatives evaluation for the Ken Pratt Boulevard / Hover Street are illustrated in **Table 4**.



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Unit Information Unit Leader Initials						Void:
Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801						

ALTERNATIVE 1 CONVENTIONAL FULL-BUILD			FIGURE 2
Designer:	Structure Numbers		
Detailer:			
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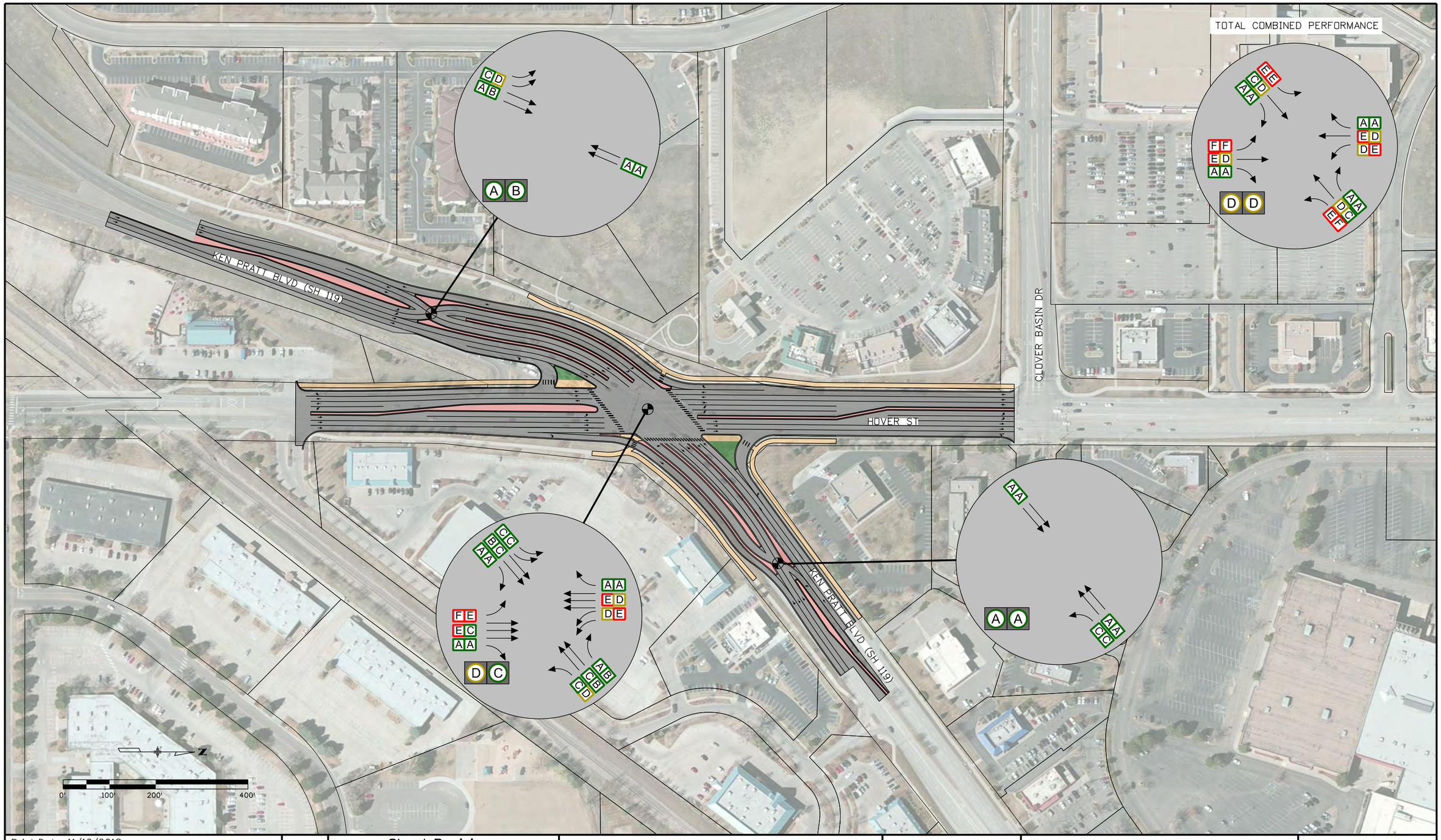

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Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

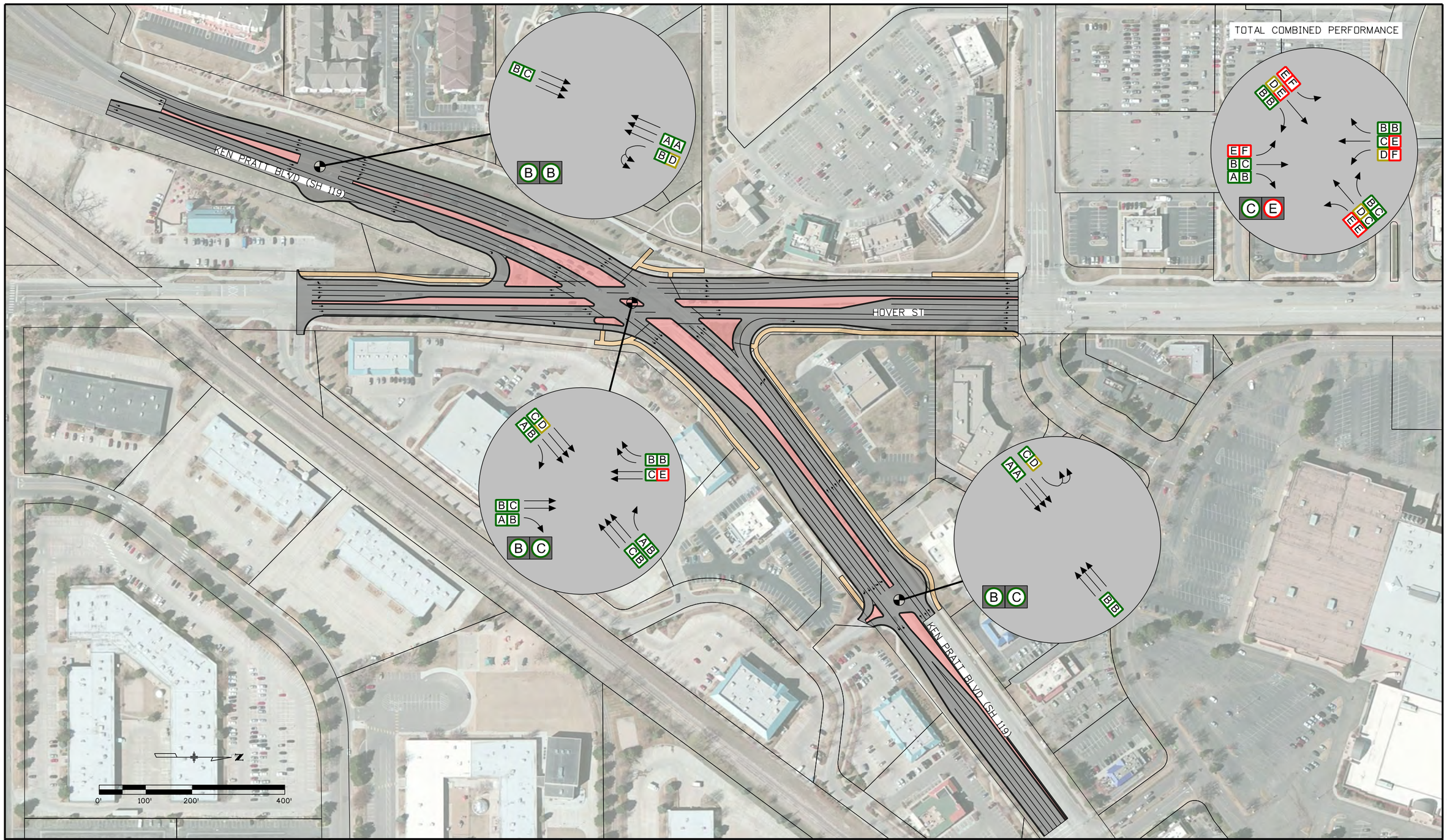
KEN PRATT BOULEVARD / HOVER STREET

As Constructed
No Revisions:
Revised:
Void:

ALTERNATIVE 2 - PARTIAL DISPLACED LEFT TURN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets:

FIGURE 3



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Unit Information Unit Leader Initials					
Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801					

As Constructed	ALTERNATIVE 3 MEDIAN U-TURN			FIGURE 4
No Revisions:	Designer:	Structure Numbers		
Revised:	Detailer:			
Void:	Sheet Subset:	Subset Sheets:		Page 28

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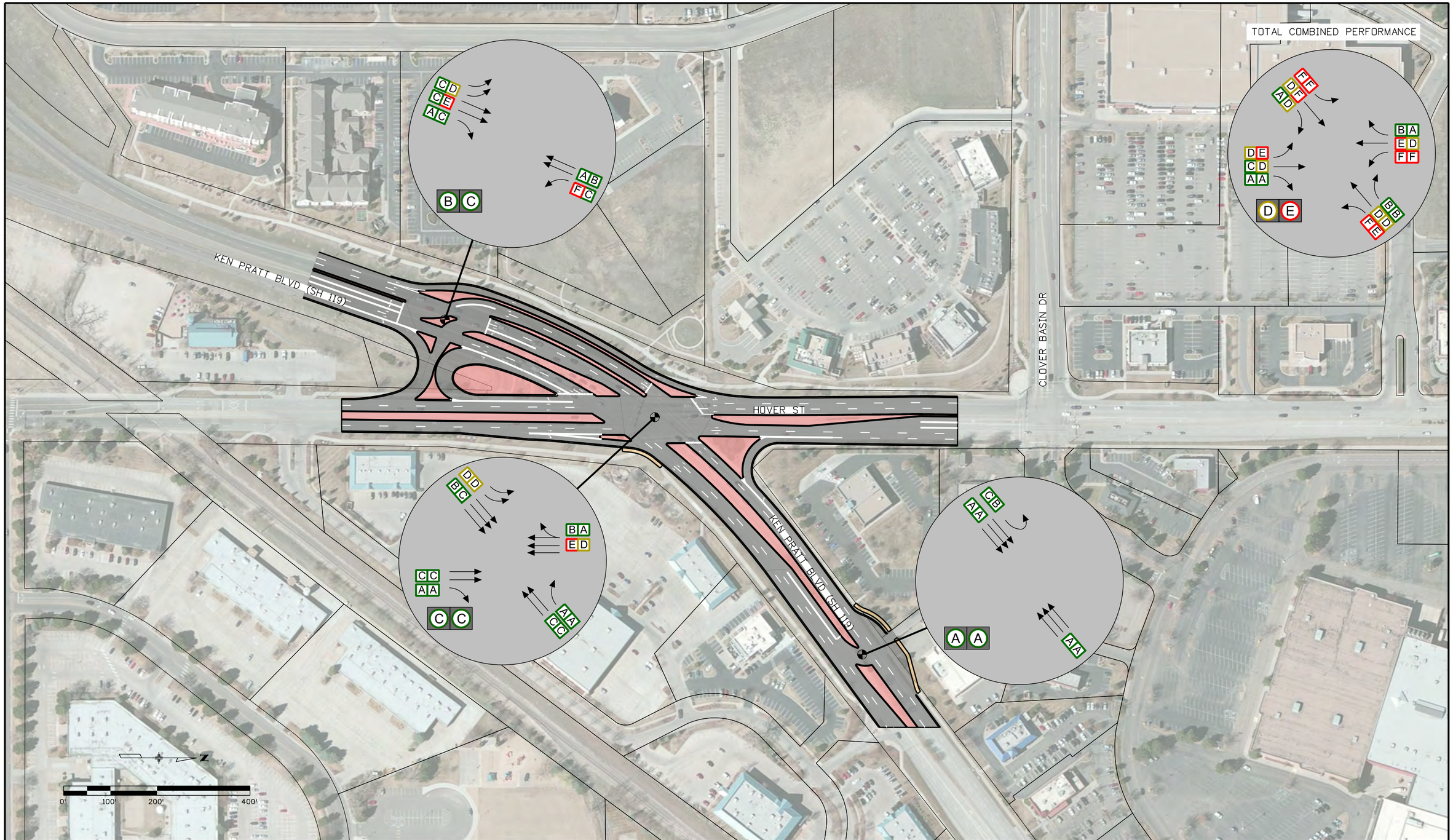

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Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801						

ALTERNATIVE 4 CITY OF LONGMONT CFI			FIGURE 5
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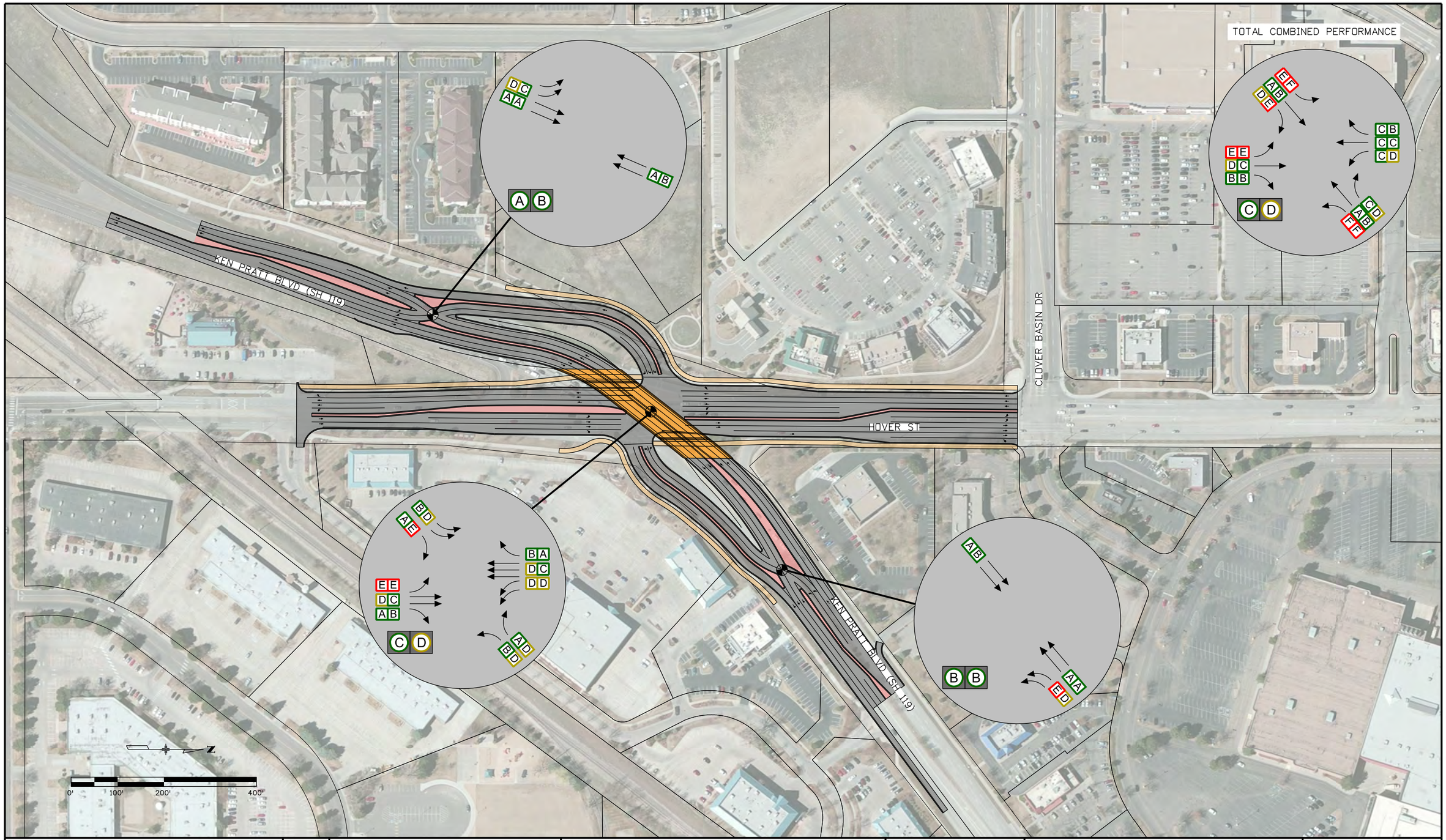

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Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801						

ALTERNATIVE 5 GRADE SEPARATED INTERCHANGE			FIGURE 6
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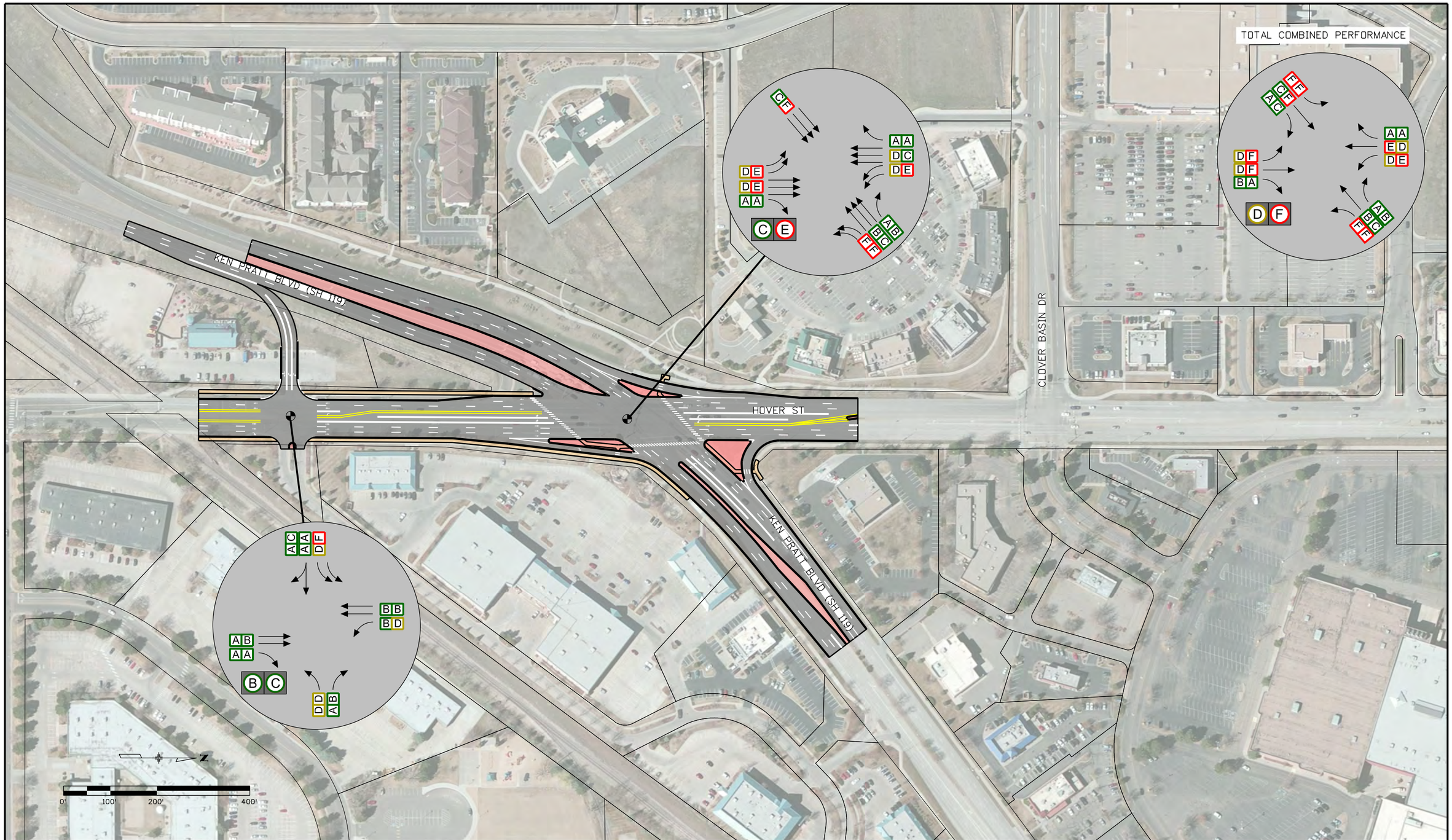

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Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801						

ALTERNATIVE 6 EB LT REDIRECT			FIGURE 7
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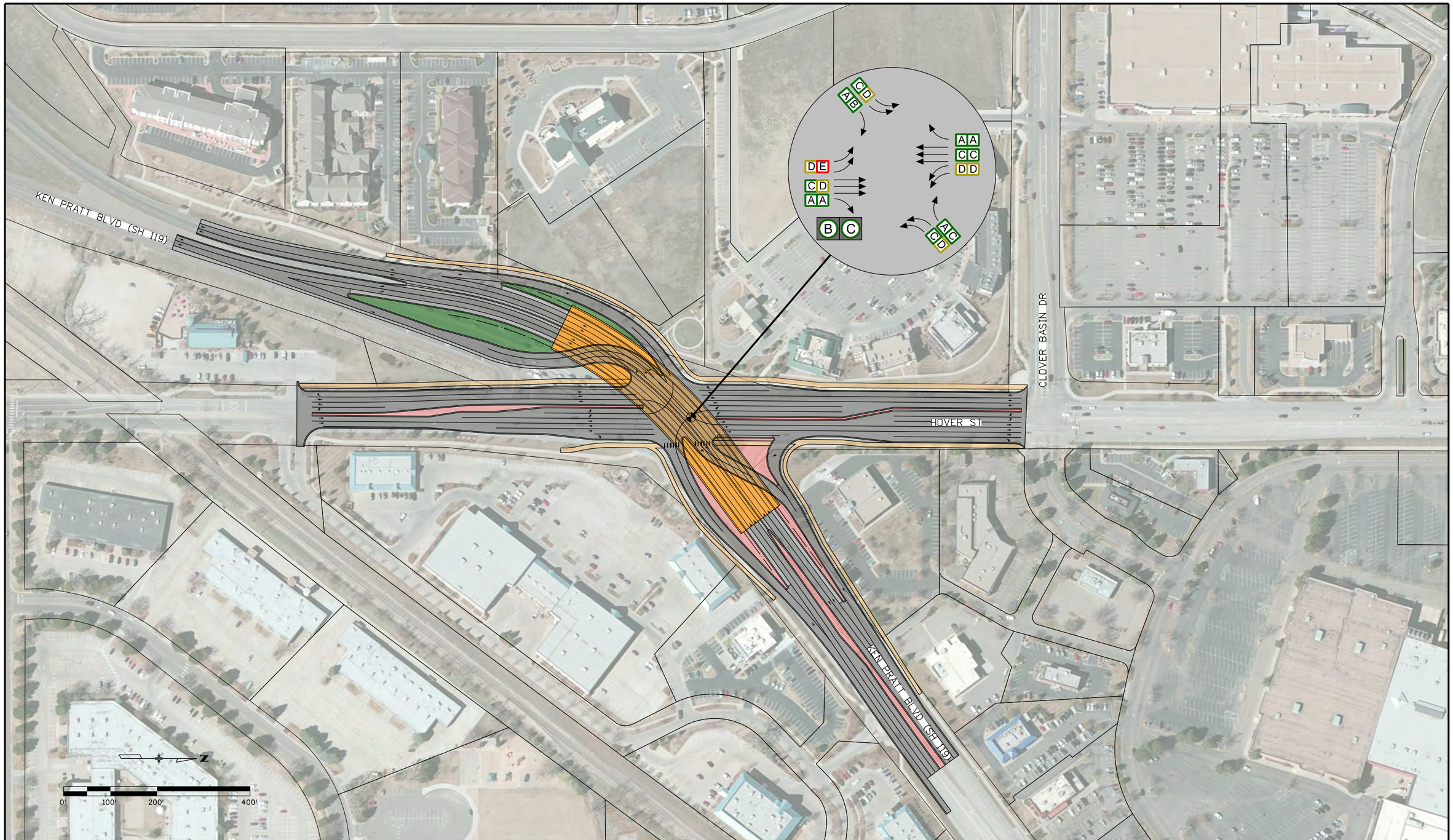

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As Constructed	ALTERNATIVE 7 SINGLE POINT URBAN INTERCHANGE			FIGURE 8
No Revisions:				
Revised:	Designer:	Structure Numbers		Page 32
Void:	Detailer:			
	Sheet Subset:	Subset Sheets:		

Table 4. Ken Pratt & Hover Analysis Matrix

	Operations			Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
Description	**Level of Service & Delay**	**Total Network Delay**	**2040 Peak Hour Queue Lengths**	**Potential Vehicular Safety Benefits**	**Multimodal Conflict Reduction**	**Pedestrian / Bicycle Connections**	**Pedestrian / Bcycle Movement Comfort and Safety**	**Transit Accomodations**	**Right of Way Required (Acres)**	**Right of Way Required (# Properties)**	**Property Access Impacts**	**Consistency with Established Local and Regional Plans**	**Conceptual-level Probable Construction Costs**	**Constructability**	**Ability to Construct in Phases**	**Use of Existing Infrastructure**
Alternative 0 - No Action	🔴	🔴	🔴	🔴	⚫	⚫	🔴	🔴	🟢	🟢	🟢	🔴	N/A	N/A	N/A	🟢
Alternative 1 - Conventional Intersection	🔴	⚫	🔴	🟢	🔴	🔴	🔴	🔴	🟢	🟢	🟢	🟢	🟢	🟢	⚫	🟢
Alternative 1a- Conventional Intersection + Westbound Grade-Separation	🟢	🟢	🟢	⚫	🟢	⚫	🟢	🟢	🟢	🟢	🟢	⚫	🔴	🔴	🟢	🔴
Alternative 1b- Conventional Interseciton + Eastbound Grade-Separatiion	🔴	⚫	⚫	⚫	🟢	⚫	🟢	🟢	🟢	🟢	🟢	⚫	🔴	🔴	🟢	🔴
Alternative 2- Partial Displaced Left-Turn	⚫	🟢	⚫	⚫	🔴	🔴	🔴	⚫	🟢	🟢	🟢	⚫	⚫	🔴	🔴	⚫
Alternative 3- Median U-Turn-	🔴	⚫	🔴	🟢	🟢	⚫	🟢	🔴	🟢	🟢	⚫	⚫	⚫	⚫	🔴	⚫
Alternative 4- City of Longmont Continuous Flow Intersection	🔴	⚫	🔴	⚫	⚫	🔴	⚫	⚫	🟢	🟢	⚫	🔴	⚫	🔴	🔴	⚫
Alternative 5- Grade-Separated Interchange	🟢	🟢	⚫	🟢	🟢	🟢	🟢	🟢	🟢	⚫	🟢	⚫	🔴	🔴	🟢	🔴
Alternative 6- Eastbound Left-Turn Redirect	🔴	⚫	🔴	⚫	🟢	⚫	⚫	🔴	🟢	🟢	🔴	⚫	🟢	⚫	⚫	⚫
Alternative 7- Single Point Urban Interchange	🟢	🟢	⚫	🟢	⚫	🟢	🟢	🟢	⚫	⚫	⚫	⚫	🔴	🔴	🟢	🔴

Ken Pratt Boulevard and Sunset Street

Introduction

General

Based on future projected traffic volumes contained in the Existing Conditions and 2040 Baseline Analysis Report, Ken Pratt Boulevard is expected to have approximately 34,000 vehicles per day near the Sunset Street intersection. Sunset Street is a north-south primary collector. Sunset Street has sidepaths available for bicyclists south of the intersection and no bicycle facilities to the north of the intersection. Bike lanes are developed north of Nelson Road along Sunset Street. The primary objective for this intersection is to improve connectivity to the existing bike network.

Ken Pratt Boulevard (SH 119) is a divided four lane non-rural principal highway (CDOT classification NR-A) that connects Boulder and Longmont at an angle, also known as the Diagonal Highway. Sunset Street is an undivided four lane primary north-south collector that runs from Plateau Road unobstructed to 11th Avenue where it dead ends at Loomiller Park. The intersection is in a more industrial area with railroad tracks running parallel to Ken Pratt Boulevard to the south and a car dealership on the northwest corner.

Problem Statement

Presently, traffic at this intersection operates at LOS D/E for AM/PM traffic and is projected to degrade to LOS F/F in the Year 2040 without any mitigating efforts according to the 2040 analysis. Furthermore, as a result of the Safety Study performed by DiExSys, the intersection presently has a Level of Service of Safety (LOSS) II with a crash pattern showing elevated single vehicle and run off the road crashes. While two crashes are typically not cause for a pattern, the rarity of bicycle related crashes in general elevate them to be further looked at for mitigation measures.

Background Analysis

Crash Data

During the study period there were 36 crashes reported at the intersection with four involving injuries and a total of four people reported as injured. There were no fatal crashes at the intersection during the study period.

Direct diagnostic analysis shows overrepresentation of single vehicle and run off the road crashes in comparison with similar intersections statewide. Also, although short of the pattern criteria of five crashes in five years, even two crashes of a generally rare type such as bicycle is an unusual coincidence.

The intersection performs at LOSS-II from the crash frequency standpoint, reflecting **low to moderate potential for crash reduction**.

Traffic Operations

2017 traffic operations at this intersection result in LOS D and unnacceptable LOS E for the AM and PM peak hours respectively. The future condition with no mitigating efforts would result in LOS F for both peak hours. Modeling shows the AM peak hour queue length for westbound Ken Pratt is expected to exceed 1,000 feet. **Table 5** shows the LOS for existing and future no action conditions.

Table 5: Ken Pratt & Sunset Level of Service

	EXISTING		2040 NO ACTION	
	AM	PM	AM	PM
LOS	D	E	F	F
DELAY	48.3	59.4	121.5	91.4

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following laneage:

- Northbound Approach: One shared left-through lane and one shared through-right-turn lane.
- Southbound Approach: One shared left-through lane and one shared through-right-turn lane.
- Eastbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, one exclusive through lane, and one shared through- right-turn lane with right-turn bypass island.

Budgetary Cost Estimate: There is no cost assumed to design and construct this alternative.

Alternative 1 – Conventional Intersection & Road Diet

This intersection incorporates a conventional design. Improvements to the intersection include revising the configuration to have dedicated right and left-turn lanes for both northbound and southbound traffic. Sunset Street improvements include a road diet incorporating Two Way Left-turn (TWLT) median as well as the addition of bike lanes in both directions.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.

- Southbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: (Maintains existing configuration) one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: (Maintains existing configuration) one exclusive left-turn lane, two through lanes, one of which is a shared through / right-turn lane.

Figure 12 displays the proposed layout for Alternative 1.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is approximately $1.8 Million to $2.1 Million.

Preservation of Existing Access Accommodations

This conventional intersection alternative adds dedicated left and right-turn lanes for northbound and southbound traffic and includes a road diet to accommodate bike lanes. Medians are also added on the north and south legs. This alternative maintains all intersection movements and all present accesses. Improvements include sidewalks and result in minor impediments on some private property including railroad property, however, most of the property impacted is within the existing right of way.

Conclusion: While some property acquisitions are required mostly frontage property with landscaping, no impacts to existing access are anticipated as a result of this alternative. Coordination with the railroad for impacts to their property or signal timing changes is also required.

Alternative 2 – Conventional Intersection with Shared Northbound Right Turn Lane

Alternative 2 is a variation of the Alternative 1 conceptual design. The improvements include dedicated left turn lanes, and a dedicated southbound right turn lane for Sunset Street. Sunset Street improvements include a road diet incorporating Two Way Left-turn (TWLT) median as well as the addition of bike lanes in both directions.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, and one shared through-right turn lane.
- Southbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: (Maintains existing configuration) one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: (Maintains existing configuration) one exclusive left-turn lane, two through lanes, one of which is a shared through / right-turn lane.

Figure 13 displays the proposed layout for Alternative 2.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is approximately $1.7 Million to $2.0 Million.

Preservation of Existing Access Accommodations

Similarly to Alternative 1 this conventional intersection alternative adds dedicated left-turn lanes for northbound and southbound traffic as well as a dedicated right-turn lane for southbound traffic. A road diet to accommodate bike lanes is also included. Medians are also added on the south leg. This alternative maintains all intersection movements and all present accesses. Improvements include sidewalks and result in minor impediments on some private property including railroad property, however, most of the property impacted is within the existing right of way. As a result of the road diet and sidewalk improvements, some parking spots may be taken from businesses on the east side of Sunset Street.

Conclusion: While some property acquisitions are required mostly frontage property with landscaping, no impacts to existing access are anticipated as a result of this alternative. Coordination with the railroad for impacts to their right of way or signal timing changes is also required.

Prioritization Criteria

Intersection Traffic Operation Analysis

The No Action alternative was analyzed as a baseline for the developed alternatives for comparison purposes. The results of the traffic operations analysis are illustrated in **Table 6** below. The analysis worksheets are contained in Appendix D for reference.

Table 6: Ken Pratt & Sunset Intersection Traffic Operations

KEN PRATT & SUNSET	INTERSECTION TOTAL OVERALL 2040 LOS		INTERSECTION QUEUE LENGTHS (FT)			
			WB		EB	
ALTERNATIVE	AM	PM	AM	PM	AM	PM
NO ACTION	F	F	1114	396	138	199
1	D	D	469	251	167	557
2	D	E	501	252	187	482

Network Traffic Analysis

The results of the corridor traffic operations analysis are illustrated on **Table 7**. The analysis worksheets are contained in Appendix D for reference. The analysis for this section represents how the alternative impacts the network as a whole, and not just limited to the intersection itself. For example, if traffic operations are poor at Ken Pratt / Sunset Street, queues may form that encroach on adjacent intersections. The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Good traffic operations along the corridor indicate that the configuration at the Ken Pratt / Sunset Street intersection does not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and

Average Network Speed. As a result the No Action average network speed is 15/7 mph for the AM/PM peak hours and the total network delay is 784.6 / 2,216.5 hours for the AM/PM peak hours respectively.

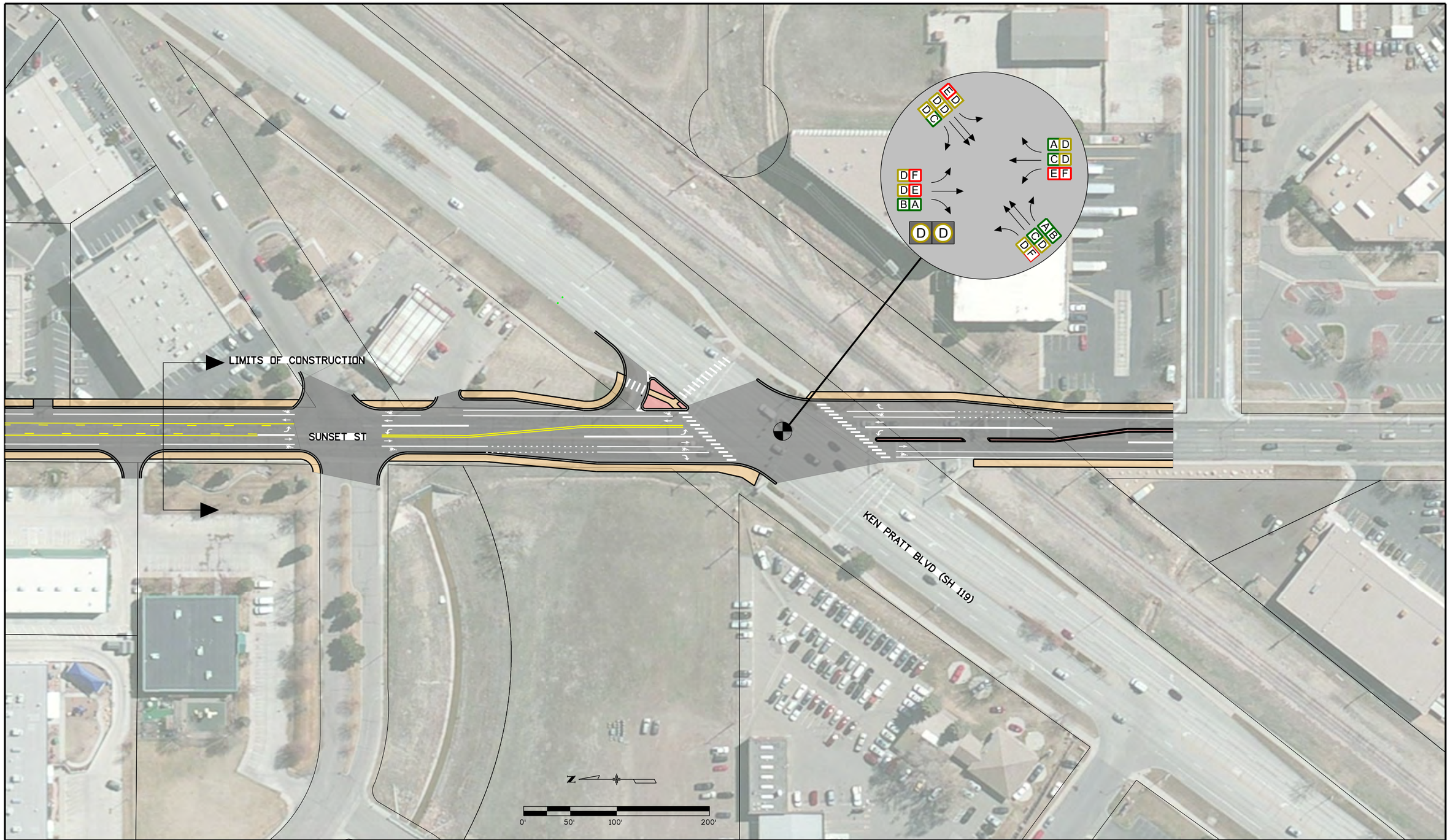
Table 7: Ken Pratt & Sunset Network Traffic

KEN PRATT & SUNSET	AVERAGE NETWORK SPEED (MPH)		TOTAL NETWORK DELAY (HR)	
ALTERNATIVE	AM	PM	AM	PM
NO ACTION	15	7	784.6	2216.5
1	22	18	140.5	331.5
2	22	17	146.1	343.1

The results indicated that Alternative 1 performs slightly better than the other overall displaying the highest average network speeds and a relatively lower delay.

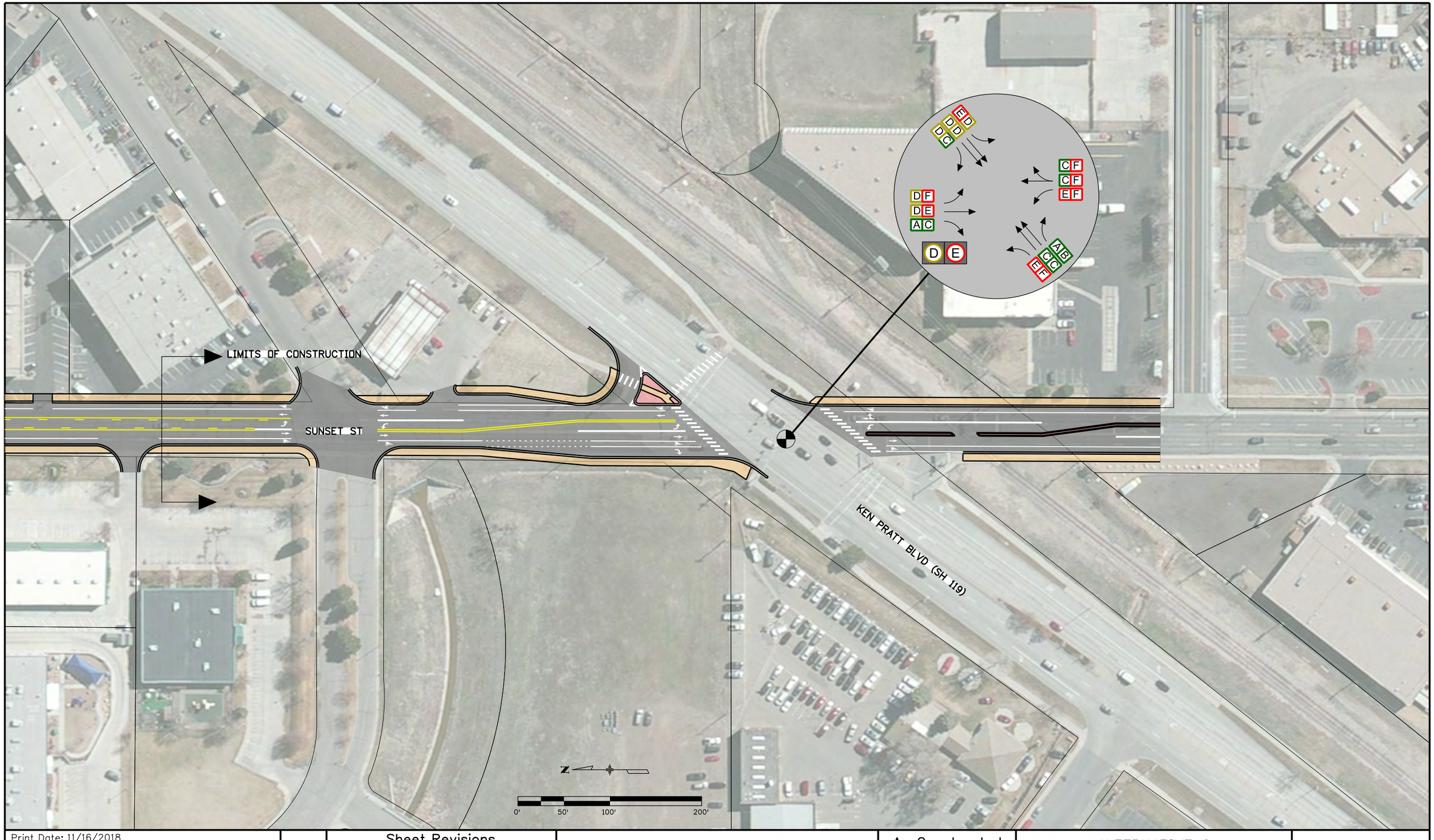
Alternative Screening Evaluation

The comprehensive results of the alternatives evaluation for the Ken Pratt Parkway / Sunset Street are illustrated in **Table 8**.



Print Date: 11/16/2018		Sheet Revisions			KEN PRATT BOULEVARD / SUNSET STREET	As Constructed
File Name: 5_Ken Pratt_Sunset_Conventional_3ln.dgn		Date:	Comments	Init.		No Revisions:
Horiz. Scale: 1:100 Vert. Scale: As Noted						Revised:
Unit Information Unit Leader Initials						Void:
Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801						

ALTERNATIVE 1 CONVENTIONAL INTERSECTION			FIGURE 9
Designer:	Structure Numbers		Page 39
Detailer:			
Sheet Subset:	Subset Sheets:		



Print Date: 11/16/2018		Sheet Revisions			KEN PRATT BOULEVARD / SUNSET STREET
File Name: 5_Ken Pratt_Sunset_Conventional_3ln_Shared NBTR.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:100 Vert. Scale: As Noted					
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As Constructed	ALTERNATIVE 2 CONVENTIONAL W/ SHARED NBTR			FIGURE 10
No Revisions:	Designer:	Structure Numbers		Page 40
Revised:	Detailer:			
Void:	Sheet Subset:	Subset Sheets:		

Table 8. Ken Pratt & Sunset Analysis Matrix

		Operations			Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
Description		Level of Service & Delay	Total Network Delay	2040 Peak Hour Queue Lengths	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bcycle Movement Comfort and Safety	Transit Accomodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 -	No Action	🔴	🔴	🔴	🔴	⚫	🔴	⚫	⚫	🟢	🟢	🟢	🔴	N/A	N/A	N/A	🟢
Alternative 1 -	Conventional Intersection + Road Diet	⚫	🟢	⚫	🟢	🟢	🟢	🟢	⚫	🟢	⚫	🟢	🟢	🟢	⚫	⚫	🟢
Alternative 2-	Conventional Intersection with Shared NBR + Road Diet	🔴	🟢	⚫	🟢	🟢	🟢	🟢	⚫	🟢	⚫	🟢	🟢	⚫	⚫	⚫	🟢

Ken Pratt Boulevard and Nelson Road

Introduction

General

Based on future projected traffic volumes contained in the Existing Conditions and 2040 Baseline Analysis Report, Ken Pratt Boulevard is expected to have approximately 33,000 vehicles per day near the Nelson Road intersection. Nelson Road is an arterial. Nelson Road accommodates bike lanes and connects a bike route. Connectivity and improvements to the existing bike network at this location is a goal along with operational improvements.

Ken Pratt Boulevard (SH 119) is a divided four lane non-rural principal highway (CDOT classification NR-A) that connects Boulder and Longmont at an angle, also known as the Diagonal Highway. Nelson Road is a divided four lane east-west arterial that runs from North Foothills Highway (SH 7) in Altona to its terminus at Ken Pratt Boulevard. It is a three legged intersection with railroad tracks running parallel to and then crossing Ken Pratt Boulevard approximately 200 feet east of the intersection. Also to the east of the intersection, Ken Pratt Boulevard begins running east-west. Approximately 200 feet north of the intersection Nelson Road intersects Price Road.

Problem Statement

Presently, the LOS for this intersection operates at B/B for AM/PM traffic, and is projected to degrade to LOS C/C in the Year 2040. The intersection is expected to operate at acceptable LOS without any mitigating efforts according to the 2040 analysis. As a result of the Safety Study performed by DiExSys, the intersection presently has a Level of Service of Safety (LOSS) II with no notable crash patterns requiring correction.

Background Analysis

Crash Data

During the study period there were 26 crashes reported at the intersection with eight involving injuries and a total of 13 people reported as injured. There were no fatal crashes at the intersection during the study period.

Rear End collisions represent the largest amount of reported crashes at the intersection. Direct diagnostics analysis shows that there are no abnormal crash patterns readily susceptible to correction.

The intersection performs at LOSS-II from the crash frequency standpoint, reflecting **low to moderate potential for crash reduction**.

Traffic Operations

2017 traffic operations for this intersection are LOS B for both AM and PM peak hours, an acceptable LOS. Future 2040 traffic operations for the intersection without any mitigating efforts result in LOS C for both peak hours, still operating at an acceptable LOS. See **Table 9** below.

Table 9: Ken Pratt & Nelson Level of Service

	EXISTING		2040 NO ACTION	
	AM	PM	AM	PM
LOS	B	B	C	C
DELAY	14.7	15.7	29.6	23.5

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following laneage:

- Northbound Approach (Ken Pratt): One exclusive left-turn lane and two through lanes.
- Southbound Approach (Ken Pratt): Two through lanes and one exclusive right-turn lane.
- Eastbound Approach (Nelson): Two exclusive left-turn lanes and one exclusive right-turn lane.
- Westbound Approach (Price): One exclusive left-turn lane and one through lane.

Budgetary Cost Estimate: There is no cost assumed to design and construct this alternative.

Alternative 1 – Conventional Intersection

At this location, an additional southwest bound through lane on Ken Pratt is extended to the Nelson intersection and terminates at the intersection as an exclusive right-turn lane. This results in also extending storage for the right-turn lane. Another improvement includes eliminating the westbound left-turn movement from Price Road and installing a median for enforcement and guidance.

This intersection with auxiliary lanes includes the following laneage:

- Northeast Bound Approach (Ken Pratt): (Maintains existing configuration) one exclusive left-turn lane and two through lanes.
- Southwest Bound Approach (Ken Pratt): (Maintains existing configuration) two through lanes and one exclusive right-turn lane.

- Southeast Bound Approach (Nelson Road): (Maintains existing configuration) two exclusive left-turn lanes and one exclusive right-turn lane. (One left-turn lane at Price Road).
- Westbound Approach (Price Road): One through lane.

Figure 14 displays the proposed layout for Alternative 1.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is approximately $800,000 to $960,000.

Preservation of Existing Access Accommodations

This conventional alternative eliminates the left-turn movement from Price Road onto Nelson Road. A larger median is incorporated at Price Road to deter the left-turn movement. Sidewalks are also added on the north side of Ken Pratt. This alternative maintains intersection movements save for the left-turn movement from Price Road. All present accesses located in this area are maintained. All of the proposed improvements are within the existing right of way.

Conclusion: No impacts to private property or existing access are anticipated as a result of this alternative. Coordination with the railroad for impacts to their right of way changes is required.

Alternative 1a – Conventional Intersection With Bus Exemption

This alternative maintains the same improvements as described in Alternative 1, with the addition of allowing buses to use the southwest bound right-turn only lane at the intersection as a through movement. Additional signage to enforce this allowance will be included in the design.

Figure 15 displays the proposed layout for Alternative 1a.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is approximately $800,000 to $960,000.

Alternative 2 – Conventional Intersection With Three Eastbound Through Lanes

Alternative 2 is a variation of the Alternative 1 design. The improvements include all of those described in Alternative 1 with the addition of a third through lane for eastbound Ken Pratt developed just past the intersection.

Laneage for this alternative remains the same as Alternative 1 described above in addition to the third eastbound through lane.

Figure 16 displays the proposed layout for Alternative 2.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated between $1.3 million and $1.9 million.

Preservation of Existing Access Accommodations

Similarly to Alternative 1 this conventional intersection alternative adds dedicated left and right-turn lanes for northbound and southbound traffic. Medians are also added on the north and west

legs, with the addition of a right-turn bypass lane for eastbound right-turners. Median is also added between Price Road and Nelson Road. This alternative maintains all intersection movements and all present accesses. Improvements include sidewalks and result in minor impediments on some private property including railroad property, however, most of the property impacted is within the existing right of way.

Conclusion: While some property acquisitions are required mostly frontage property with landscaping, no impacts to existing access are anticipated as a result of this alternative. Coordination with the railroad for impacts to their right of way.

Prioritization Criteria

Intersection Traffic Operation Analysis

The No Action alternative was analyzed as a baseline for the developed alternatives for comparison purposes. The results of the traffic operations analysis are illustrated in **Table 10**. The analysis worksheets are contained in Appendix D for reference.

Table 10: Ken Pratt & Nelson Intersection Traffic Operations

KEN PRATT & NELSON	INTERSECTION TOTAL OVERALL 2040 LOS		INTERSECTION QUEUE LENGTHS (FT)			
			WB		EB	
ALTERNATIVE	AM	PM	AM	PM	AM	PM
NO ACTION	C	C	325	232	24	47
1	B	C	141	94	102	616
1a	B	C	141	94	102	616
2	B	B	145	95	79	99

Network Traffic Analysis

The results of the corridor traffic operations analysis are illustrated in **Table 11**. The analysis worksheets are contained in Appendix D for reference. The analysis for this section represents how the alternative impacts the network as a whole, and not just limited to the intersection itself. For example, if traffic operations are poor at Ken Pratt / Nelson Road, queues may form that encroach on adjacent intersections. The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Good traffic operations along the corridor indicate that the configuration at the Ken Pratt / Nelson Road intersection do not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and Average Network Speed. The No Action alternative was analyzed as a baseline to compare the developed alternatives to. As a result the No Action average network speed is 15/7 mph for the AM/PM peak hours and the total network delay is 784.6 / 2,216.5 hours for the AM/PM peak hours respectively.

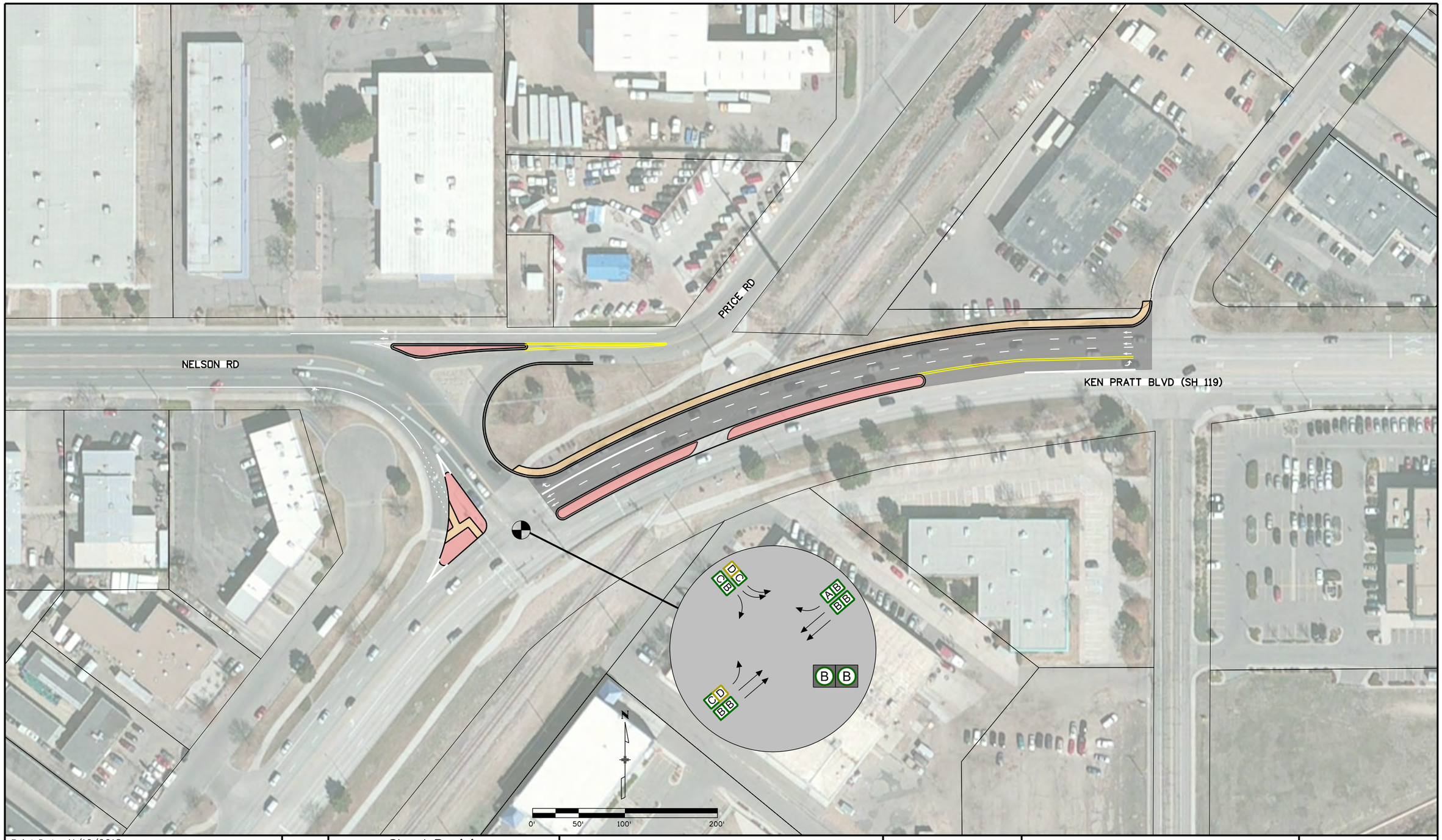
Table 11: Ken Pratt & Nelson Network Traffic

KEN PRATT & NELSON	AVERAGE NETWORK SPEED (MPH)		TOTAL NETWORK DELAY (HR)	
ALTERNATIVE	AM	PM	AM	PM
NO ACTION	15	7	784.6	2216.5
1	22	17	146.9	365.7
1a	22	17	146.9	365.7
2	22	18	140.5	331.5

The results indicated that Alternative 2 performs slightly better than the others overall, displaying the highest average network speeds and lower delay.

Alternative Screening Evaluation

The comprehensive results of the alternatives evaluation for the Ken Pratt Parkway / Nelson Road are illustrated in **Table 12**.



Print Date: 11/16/2018	Sheet Revisions		
File Name: 7_Ken Pratt_Nelson_Conventional.dgn	Date:	Comments	Init.
Horiz. Scale: 1:100 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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KEN PRATT BOULEVARD / NELSON ROAD

As Constructed			
No Revisions:	ALTERNATIVE 1 CONVENTIONAL INTERSECTION		FIGURE 11
Revised:	Designer:	Structure Numbers	
Void:	Detailer:		
	Sheet Subset:	Subset Sheets:	

Print Date: 11/16/2018	Sheet Revisions		
File Name: 7a_Ken Pratt_Nelson_Conventional_Thru Bus.dgn	Date:	Comments	Init.
Horiz. Scale: 1:100 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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KEN PRATT BOULEVARD / NELSON ROAD

As Constructed

No Revisions:

Revised:

Void:

ALTERNATIVE 1A
CONVENTIONAL W/ BUS EXEMPTION

Designer:

Detailer:

Sheet Subset:

Structure Numbers

Subset Sheets:

FIGURE 12

Print Date: 11/16/2018
File Name: 7_Ken Pratt_Nelson_Conventional_3 Lanes.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions

Date:	Comments	Init.

KEN PRATT BOULEVARD / NELSON ROAD

As Constructed
No Revisions:
Revised:
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ALTERNATIVE 2
CONVENTIONAL INTERSECTION
W/ 3 EBT LANES

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets:

FIGURE 13

Table 12. Ken Pratt & Nelson Analysis Matrix

		Operations			Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
Description		Level of Service & Delay	Total Network Delay	2040 Peak Hour Queue Lengths	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bcycle Movement Comfort and Safety	Transit Accomodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 -	No Action													N/A	N/A	N/A	
Alternative 1 -	Conventional Intersection																
Alternative 1a-	Conventional Intersection + Westbound Bus Exemption																
Alternative 2-	Conventional Interseciton + 3 Eastbound Through Lanes																

Hover Street and Clover Basin Drive

Introduction

General

The intersection of Hover Street and Clover Basin is located in a commercial area with the east leg serving as access for the Village at the Peaks Mall loop. Based on future projected traffic volumes contained in the Existing Conditions and 2040 Baseline Analysis Report, Hover Street is expected to have approximately 46,000 vehicles per day near the Clover Basin intersection. However, both corridors are heavily travelled by commuters and Clover Basin Drive is expected to have approximately 26,000 vehicles per day in Year 2040.

Hover Street is a divided four lane major arterial that runs north-south from Interlocken Loop in Broomfield to Ute Highway (SH 66) in Longmont. Clover Basin is a four-lane east-west arterial running from N 75th Street to its terminus at the Village at the Peaks Mall circulatory road.

Problem Statement

The existing traffic operations for this intersection are shown to operate at LOS B/C during AM/PM peak hours. In the Year 2040, the intersection is projected to degrade to unacceptable LOS E/F during the AM/PM peak hours without any mitigating improvements.. As a result of the Safety Study performed by DiExSys, the intersection presently has a Level of Service of Safety (LOSS) III for crash frequency and LOSS IV for severity. Injury crashes, multiple vehicle crashes (> 2) and broadside type crashes are overrepresented.

Background Analysis

Crash Data

During the study period 105 crashes were reported at this intersection with 40 involving injuries and a total of 62 people reported as injured. There were no fatal crashes at the intersection during the study period.

Direct diagnostics analysis shows that injury crashes, three or more vehicles crashes and broadsides are over-represented. Additionally, bicycle crashes have a relatively high prevalence.

This intersection performs at LOSS-III from the crash frequency standpoint, reflecting **moderate to high potential for crash reduction**.

Traffic Operations

The intersection presently operates at acceptable LOS B/C during the morning and evening peak periods. Year 2040 traffic operations are expected to degrade to unacceptable LOS E/F during the morning and evening peak periods, respectively. The southbound PM queue exceeds 1,000 feet along Hover Street in the future condition without any mitigating improvements to the intersection. See **Table 13** below.

Table 13: Hover & Clover Basin Level of Service

	EXISTING		2040 NO ACTION	
	AM	PM	AM	PM
LOS	B	C	E	F
DELAY	19.2	28.1	70.9	148.5

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, three through lanes with a shared right turn lane.
- Southbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, one through lane, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane and one shared through-right-turn lane.

Budgetary Cost Estimate: There is no cost assumed to design and construct this alternative.

Alternative 1 – Conventional Intersection with Dual Eastbound Right Turn Lanes

This alternative is a conventional intersection and includes an additional right-turn only lane to the eastbound approach. The southbound approach includes converting the right-turn only lane to a shared through plus right-turn lane. Additionally, a second exclusive left-turn lane is included for the northbound approach.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes, two through lanes, and one shared through / right-turn lane.
- Southbound Approach: One exclusive left-turn lane, two through lanes, and one shared through / right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one shared through / right-turn lane.
- Westbound Approach: (Maintains existing configuration) one exclusive left-turn lane and one shared through / right-turn lane.

Figure 17 displays the proposed layout for Alternative 1.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is approximately $960,000 to $1.2 Million.

Preservation of Existing Access Accommodations

This conventional alternative accommodates an additional eastbound right-turn lane, southbound through lane, and northbound left-turn lane. This alternative maintains all intersection movements and maintains existing accesses located in this area. All of the proposed improvements are within the existing right of way.

Conclusion: No impacts to private property or existing access are anticipated as a result of this alternative.

Alternative 1a – Conventional With Dual Eastbound Right Turn Island

This alternative includes the improvements from Alternative 1 and channelizes the right turn movement with a bypass lane.

Figure 18 displays the proposed layout for Alternative 1a.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is $880,000 to $1.3 Million.

Preservation of Existing Access Accommodations

Similar to Alternative 1 for this intersection, this alternative also accommodates an additional eastbound right-turn lane, southbound through lane, and a second northbound left-turn lane with longer storage lengths. All of the proposed improvements are within the existing right of way.

Conclusion: No impacts to private property are anticipated as a result of this alternative.

Alternative 2 – Conventional With Dual Eastbound Right Turn and Exclusive Southbound Right Turn Lanes

This alternative takes the improvements from Alternative 1a and adds a southbound right turn bypass island with exclusive right turn lane to shorten the north-south crossing distance on the west side of the intersection.

Figure 19 displays the proposed layout for Alternative 2.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is $1.1 Million to $1.6 Million.

Preservation of Existing Access Accommodations

Similar to Alternative 1 for this intersection, this alternative maintains existing accesses located in this area. All of the proposed improvements are within the existing right of way.

Conclusion: No impacts to private property are anticipated as a result of this alternative.

Prioritization Criteria

Intersection Traffic Operation Analysis

The No Action alternative was analyzed as a baseline for the developed alternatives for comparison purposes. The results of the traffic operations analysis are illustrated in **Table 14**. The analysis worksheets are contained in Appendix D for reference.

Table 14: Hover & Clover Basin Intersection Traffic Operations

HOVER & CLOVER BASIN	INTERSECTION TOTAL OVERALL 2040 LOS		INTERSECTION QUEUE LENGTHS (FT)			
			SB		NB	
ALTERNATIVE	AM	PM	AM	PM	AM	PM
NO ACTION	E	F	199	1038	707	146
1	C	D	615	308	37	251
1a	C	D	615	308	37	251
2	B	D	182	171	44	241

Network Traffic Analysis

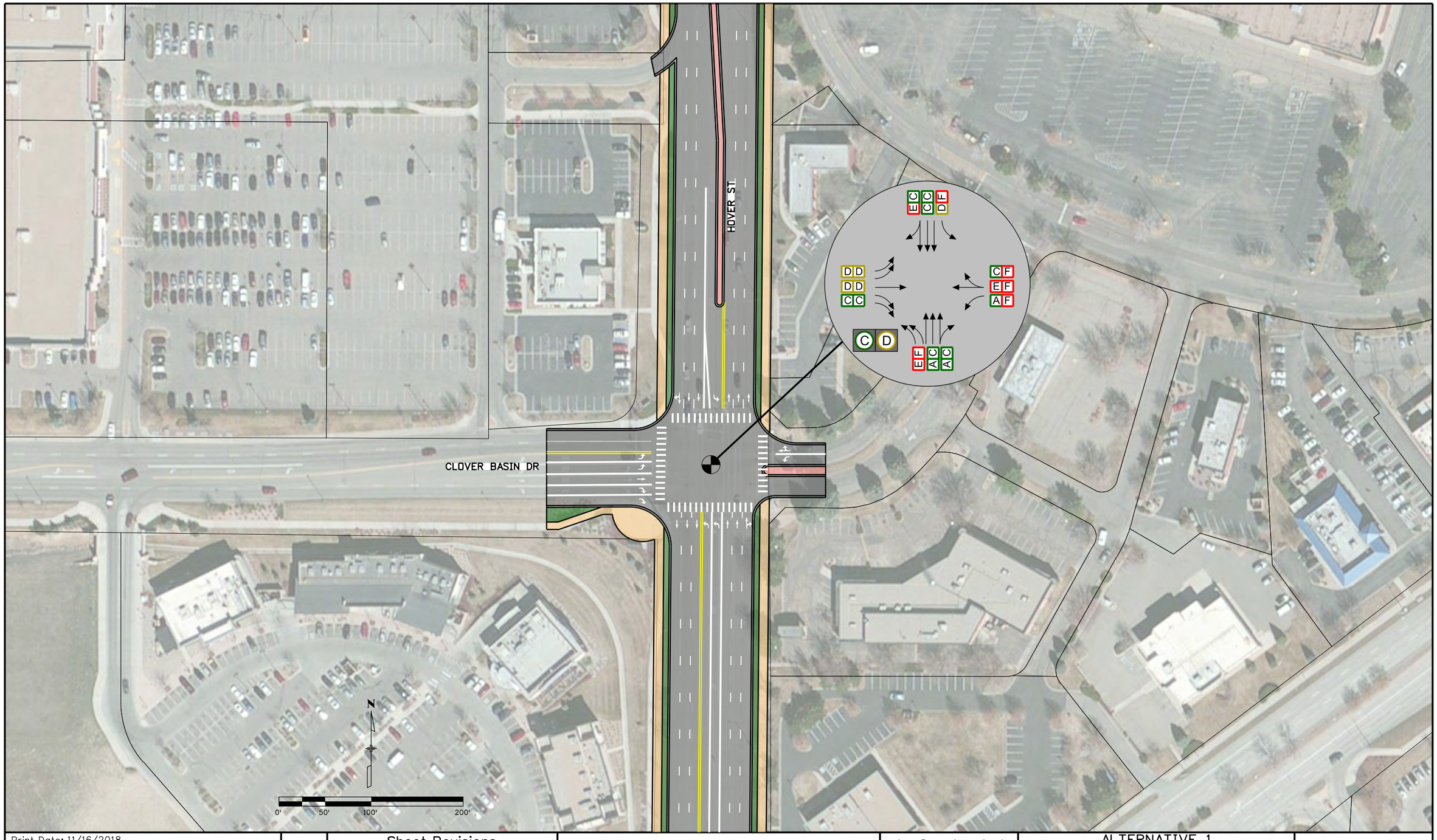
The results of the corridor traffic operations analysis are illustrated in **Table 15**. The analysis worksheets are contained in Appendix D for reference. The analysis for this section represents how the alternative impacts the network as a whole, and not just limited to the intersection itself. For example, if traffic operations are poor at Hover / Clover Basin, queues may form that encroach on adjacent intersections. The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Good traffic operations along the corridor indicate that the configuration at the Hover / Clover Basin intersection do not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and Average Network Speed. The No Action alternative was analyzed as a baseline to compare the developed alternatives to. As a result the No Action average network speed is 15/7 mph for the AM/PM peak hours and the total network delay is 784.6 / 2,216.5 hours for the AM/PM peak hours respectively.

Table 15: Hover & Clover Basin Network Traffic

HOVER & CLOVER BASIN	AVERAGE NETWORK SPEED (MPH)		TOTAL NETWORK DELAY (HR)	
ALTERNATIVE	AM	PM	AM	PM
NO ACTION	15	7	784.6	2216.5
1	22	18	140.5	331.5
1a	22	18	140.5	331.5
2	22	17	142.1	337.6

Alternative Screening Evaluation

The comprehensive results of the alternatives evaluation for the Hover Street / Clover Basin Drive are illustrated in **Table 21**.



Print Date: 11/16/2018	Sheet Revisions		
File Name: 9_Hover_Clover Basin_Conventional.dgn	Date:	Comments	Init.
Horiz. Scale: 1:100 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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HOVER STREET / CLOVER BASIN DRIVE

As Constructed

No Revisions:

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ALTERNATIVE 1
CONVENTIONAL INTERSECTION
W/ DUAL EBR

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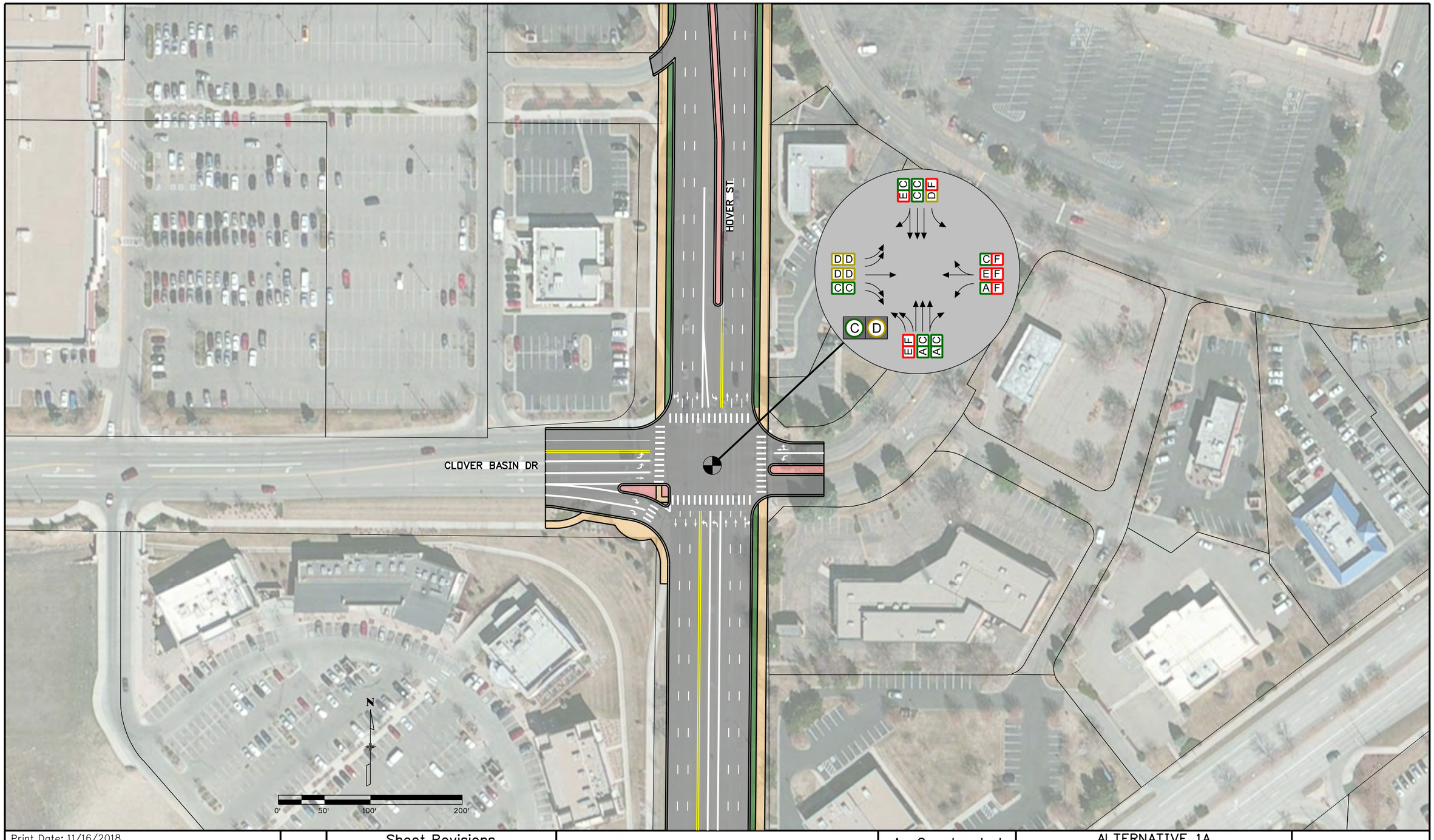
Subset Sheets:

FIGURE 14



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Horiz. Scale: 1:100 Vert. Scale: As Noted						Revised:
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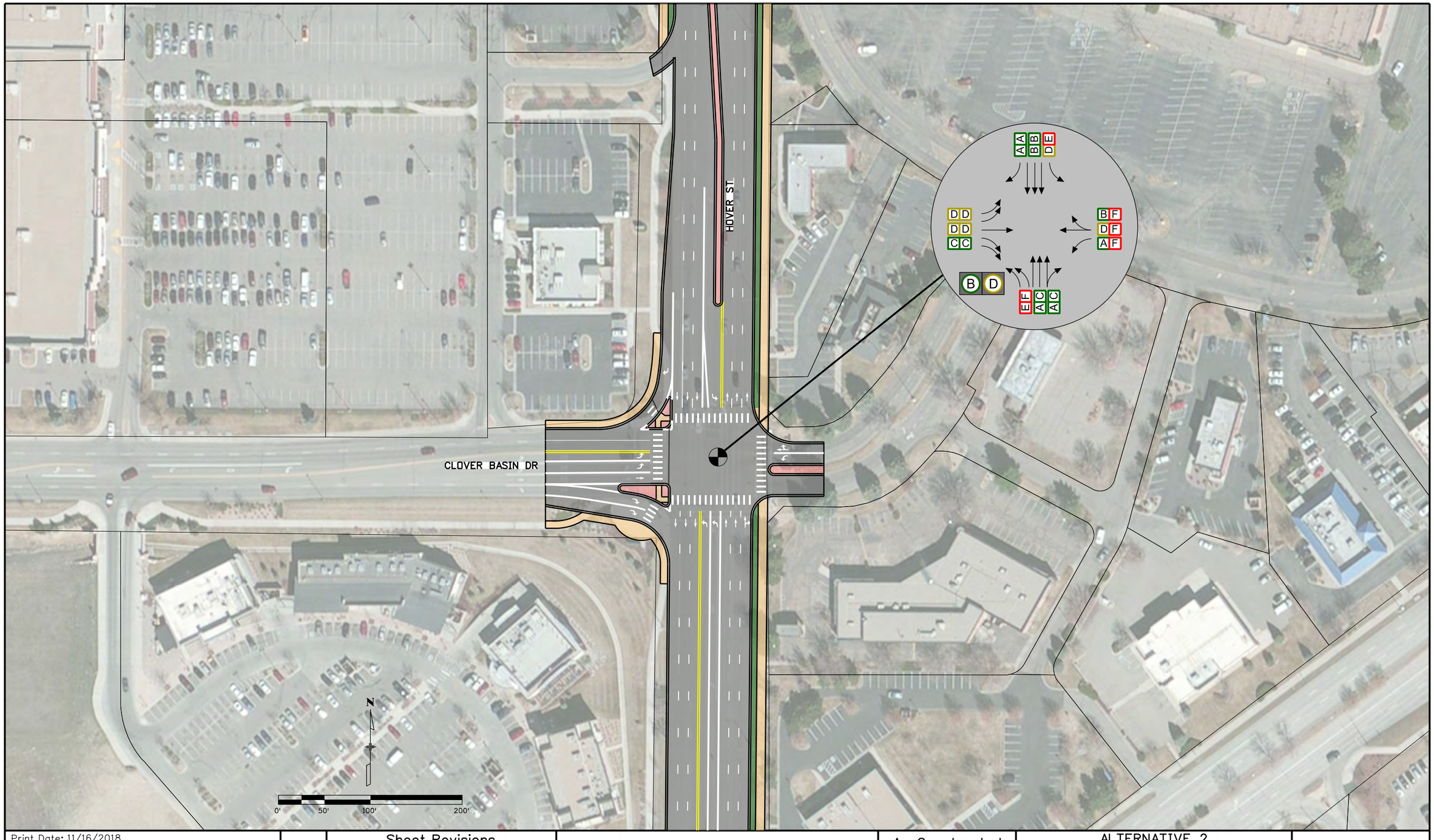
ALTERNATIVE 1A CONVENTIONAL W/ DUAL EBRT ISLAND			FIGURE 15
Designer:	Structure Numbers		
Detailer:			
Sheet Subset:	Subset Sheets:		Page 57



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File Name: 9_Hover_Clover Basin_Conventional_Channel EBR_3 SBT.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
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Sheet Revisions		
Date:	Comments	Init.

HOVER STREET / CLOVER BASIN DRIVE

As Constructed
No Revisions:
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ALTERNATIVE 2
CONVENTIONAL W/ DUAL EBRT
AND EXCLUSIVE SBRT

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets:

FIGURE 16

Table 16. Hover & Clover Basin Analysis Matrix

		Operations			Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
Description		Level of Service & Delay	Total Network Delay	2040 Peak Hour Queue Lengths	Potential Vehicular Safety Benefits	Multimodal Conflict Reduction	Pedestrian / Bicycle Connections	Pedestrian / Bcycle Movement Comfort and Safety	Transit Accomodations	Right of Way Required (Acres)	Right of Way Required (# Properties)	Property Access Impacts	Consistency with Established Local and Regional Plans	Conceptual-level Probable Construction Costs	Constructability	Ability to Construct in Phases	Use of Existing Infrastructure
Alternative 0 -	No Action	🔴	🔴	🔴	🔴	⚫	⚫	⚫	🔴	🟢	🟢	🟢	🔴	N/A	N/A	N/A	🟢
Alternative 1 -	Conventional Intersection With Dual Eastbound Right	⚫	🟢	⚫	🟢	🔴	⚫	🔴	⚫	🟢	🟢	🟢	⚫	🟢	🟢	⚫	🟢
Alternative 1a-	Conventional Intersection W/ Dual Eastbound Right Island	⚫	🟢	⚫	🟢	⚫	⚫	⚫	⚫	🟢	🟢	🟢	⚫	⚫	🟢	⚫	🟢
Alternative 2-	Conventional Intersection With Dual Eastbound Right + Exclusive Southbound Right	⚫	🟢	⚫	🟢	🟢	⚫	🟢	⚫	🟢	🟢	🟢	🟢	⚫	🟢	🟢	⚫

Hover Street and Bent Way

Introduction

General

The intersection of Hover Street and Bent Way is located in a commercial area with the east leg serving as an access for the Village at the Peaks Mall circulatory road and other commercial properties. Based on future projected traffic volumes contained in the Existing Conditions and 2040 Baseline Analysis Report, Hover Street is expected to have approximately 42,000 vehicles per day near the Bent Way intersection.

Hover Street is a divided four lane major arterial that runs north-south from Interlocken Loop in Broomfield to Ute Highway (SH 66) in Longmont. Bent Way is a two-lane private road used to facilitate traffic between the commercial properties in the area. Bent Way runs east-west from Dry Creek Drive to the Village at the Peaks Mall circulatory road. A multi-use trail terminates near Bent Way on the east side with an underpass at Hover Street.

Problem Statement

The 2017 traffic operations for this intersection are shown to operate at LOS A/C for AM/PM peak hours. In the Year 2040, the intersection operations are projected to degrade to LOS B/F during the AM/PM peak hours without any mitigating improvements. As a result of the Safety Study performed by DiExSys, the intersection presently has a Level of Service of Safety (LOSS) IV for crash frequency and severity. While no type of crash rose to the level as a pattern of crashes, the presence of rare types of crashes including bicycle and pedestrian is concerning.

Background Analysis

Crash Data

During the study period there were 73 crashes reported at the intersection with 25 involving injuries and a total of 39 people reported as injured. There were no fatal crashes at the intersection during the study period.

Rear End collisions represent the largest amount of crashes at the intersection followed by Approach Turn and Broadside. Direct diagnostics analysis shows that no crash types quite meet the threshold to be identified as a pattern. Additionally, although not meeting the pattern identification criteria of 5 crashes in 5 years, the grouping of 3 crashes of rare types (pedestrian and bicycle) may be indicative of an issue at the intersection.

The intersection performs at LOSS-IV from the crash frequency standpoint, reflecting **high potential for crash reduction**.

Traffic Operations

Traffic operates at an acceptable LOS A during the AM peak period and LOS C during the PM peak period at the existing intersection. Projections for the 2040 No Action scenario result in LOS B for the AM peak hour and degrade to an unacceptable LOS F for the PM peak hour. See **Table 22** below.

Table 17: Hover & Bent Way Level of Service

	EXISTING		2040 NO ACTION	
	AM	PM	AM	PM
LOS	A	C	B	F
DELAY	9.0	28.4	15.4	151.7

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, three through lanes, and one shared through-right-turn lane.
- Southbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Eastbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.

Budgetary Cost Estimate: There is no cost assumed to design and construct this alternative.

Alternative 1 – Conventional Intersection

This alternative maintains a conventional layout and the only alternative for this location. The alternative includes capacity improvements at the intersection; additional exclusive left-turn lanes for both northbound and southbound traffic, converting existing southbound right-turn only lane to a shared through / right-turn lane, and continuing three through lanes beyond the intersection further south.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes and three through lanes with a shared right turn lane.
- Southbound Approach: Two exclusive left-turn lanes and three through lanes with a shared right turn lane.

- Eastbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Westbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.

Figure 20 displays the proposed layout for Alternative 1.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is approximately $240,000 to $360,000. The semi-detailed engineer's estimate is contained in Appendix E for reference.

Preservation of Existing Access Accommodations

This conventional alternative accommodates additional northbound and southbound through and left-turn lanes. This alternative maintains existing intersection movements and accesses located in this area. All proposed improvements are within the existing right of way.

Conclusion: No impacts to private property or existing accesses are anticipated as a result of this alternative.

Prioritization Criteria

The No Action alternative was analyzed as a baseline for the developed alternatives for comparison purposes. The results of the traffic operations analysis are illustrated in **Table 18**. The analysis worksheets are contained in Appendix D for reference.

Table 18: Hover & Bent Way Intersection Traffic Operations

HOVER & BENT WAY	INTERSECTION TOTAL OVERALL 2040 LOS		INTERSECTION QUEUE LENGTHS (FT)			
			SB		NB	
ALTERNATIVE	AM	PM	AM	PM	AM	PM
NO ACTION	B	F	292	624	161	658
1	B	C	129	86	126	213

Network Traffic Analysis

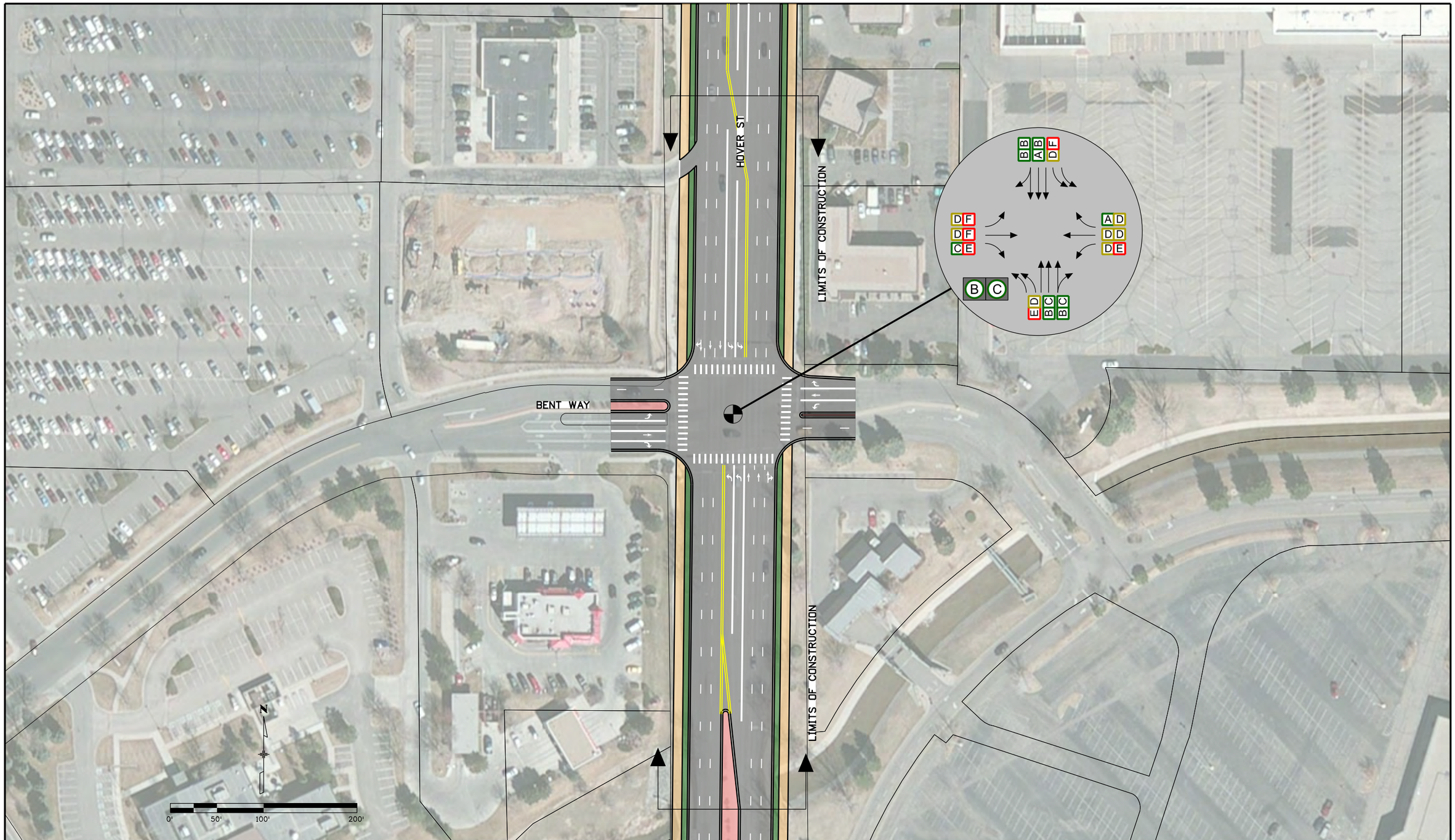
The results of the corridor traffic operations analysis are illustrated in **Table 19**. The analysis worksheets are contained in Appendix D for reference. The analysis for this section represents how the alternative impacts the network as a whole, and not just limited to the intersection itself. For example, if traffic operations are poor at Hover / Bent Way, queues may form that encroach on adjacent intersections. The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Good traffic operations along the corridor indicate that the configuration at the Hover / Bent Way intersection do not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and Average Network Speed. The No Action alternative was analyzed as a baseline to compare the developed alternatives to. As a result the No Action average network speed is 15/7 mph for the AM/PM peak hours and the total network delay is 784.6 / 2,216.5 hours for the AM/PM peak hours respectively.

Table 19: Hover & Bent Way Network Traffic

HOVER & BENT WAY	AVERAGE NETWORK SPEED (MPH)		TOTAL NETWORK DELAY (HR)	
ALTERNATIVE	AM	PM	AM	PM
NO ACTION	15	7	784.6	2216.5
1	22	18	140.5	331.5

Alternative Screening Evaluation

The comprehensive results of the alternative evaluation for the Ken Pratt Parkway / Bent Way are illustrated in **Table 20**.



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Horiz. Scale: 1:100 Vert. Scale: As Noted			
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HOVER STREET / BENT WAY

As Constructed	ALTERNATIVE 1 CONVENTIONAL INTERSECTION		
No Revisions:	Designer:	Structure Numbers	
Revised:	Detailer:		
Void:	Sheet Subset:	Subset Sheets:	

FIGURE 17

Table 20. Hover & Bent Way Analysis Matrix

	Operations			Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
Description	**Level of Service & Delay**	**Total Network Delay**	**2040 Peak Hour Queue Lengths**	**Potential Vehicular Safety Benefits**	**Multimodal Conflict Reduction**	**Pedestrian / Bicycle Connections**	**Pedestrian / Bcycle Movement Comfort and Safety**	**Transit Accomodations**	**Right of Way Required (Acres)**	**Right of Way Required (# Properties)**	**Property Access Impacts**	**Consistency with Established Local and Regional Plans**	**Conceptual-level Probable Construction Costs**	**Constructability**	**Ability to Construct in Phases**	**Use of Existing Infrastructure**
Alternative 0 - No Action	🔴	🔴	⚫	🔴	⚫	⚫	🔴	⚫	🟢	🟢	🟢	🔴	N/A	N/A	N/A	🟢
Alternative 1 - Conventional Intersection with Dual NB/SB Lefts	⚫	🟢	🟢	⚫	⚫	⚫	🔴	⚫	🟢	🟢	🟢	🟢	🟢	🟢	🟢	⚫

Hover Street and Nelson Road

Introduction

General

Based on future projected traffic volumes contained in the Existing Conditions and 2040 Baseline Analysis Report, Hover Street is expected to have approximately 42,000 veh/day and Nelson Road 16,000 veh/day near the intersection.

Hover Street is a divided four lane major arterial that runs north-south from Interlocken Loop in Broomfield to Ute Highway (SH 66) in Longmont. Nelson Road is a four-lane arterial. Nelson Road runs east-west from North Foothills Highway (SH7) in Altona to Ken Pratt Boulevard (SH 119) in Longmont. Hover Street is a large commuter route, while Nelson Road accommodates bicycle lanes and is considered part of the bike trail network in Longmont.

Problem Statement

The existing LOS for this intersection operates at LOS C/E for AM/PM traffic, and is projected to degrade to LOS D/F in the year 2040 without any mitigating efforts according to the 2040 analysis. As a result of the Safety Study performed by DiExSys, the intersection presently has a Level of Service of Safety (LOSS) IV for crash frequency and severity. Sideswipe same direction type crashes, crashes during rain, and the presence of bicycle crashes are all standouts from the data analyzed.

Background Analysis

Crash Data

During the study period there were 114 crashes reported at the intersection with 34 involving injuries and a total of 45 people reported as injured. There were no fatal crashes at the intersection during the study period.

Direct diagnostics analysis shows that sideswipe same direction and crashes during rain are over-represented. Additionally, bicycle crashes fall just short of the crash pattern definition threshold; however, four crashes in five years is concerning due to the fact that bicycle crashes have a high probability of injuries.

The intersection performs at LOSS-IV from the crash frequency standpoint, reflecting **high potential for crash reduction**.

Traffic Operations

Presently, the intersection is failing, operating at LOS C in the AM peak hour and LOS E in the PM peak hour. Future 2040 traffic operations for the intersection without any changes result in an overall failure of the intersection with LOS D for the AM peak hour and LOS F for the PM peak hour. Queue lengths in the PM peak for southbound traffic are anticipated to be 2,284 feet and all other directions queueing at more than 550 feet. See **Table 21** below.

Table 21: Hover & Nelson Level of Service

	EXISTING		2040 NO ACTION	
	AM	PM	AM	PM
LOS	C	E	D	F
DELAY	26.9	74.1	39.2	225.4

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, two through lanes, and one shared through-right-turn lane.
- Southbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.
- Eastbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Budgetary Cost Estimate: There is no cost assumed to design and construct this alternative.

Alternative 1 – Conventional Intersection

This alternative includes improvements for capacity and multi-modal needs. Additional exclusive left-turn lanes are proposed for the northbound and southbound approaches. Bike lanes are proposed to be implemented along Nelson Road.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Eastbound Approach: (Maintains existing configuration with the addition of a bike lane) two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: (Maintains existing configuration with the addition of a bike lane) two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Figure 21 displays the proposed layout for Alternative 1.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated to be between $900,000 to $1.3 million.

Preservation of Existing Access Accommodations

This alternative incorporates additional northbound and southbound left-turn lanes, and bike lanes along Nelson Road. This alternative maintains existing accesses located in this area, and accommodates all existing movements at the intersection. All of the proposed improvements are within the existing right of way.

Conclusion: No impacts to private property or existing access are anticipated as a result of this alternative.

Alternative 2 – Conventional Intersection With Three Through Lanes

This alternative includes the improvements in Alternative 1 while also adding a third through lane for northbound and southbound traffic. This is accomplished by converting the existing right-turn only lanes for northbound and southbound approaches to a shared through / right-turn lanes in both directions.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: Two exclusive left-turn lanes, two through lanes, and one shared through / right-turn lane.
- Southbound Approach: Two exclusive left-turn lanes, two through lanes, and one shared through / right-turn lane.
- Eastbound Approach: (Maintains existing configuration with the addition of a bike lane) two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.
- Westbound Approach: (Maintains existing configuration with the addition of a bike lane) two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Figure 22 displays the proposed layout for Alternative 2.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated to be between $1.4 million and $2 million.

Preservation of Existing Access Accommodations

This alternative incorporates additional northbound and southbound left-turn lanes as Alternative 1 for this intersection, while also turning the exclusive right-turn lane to through-right-turn lanes in both the northbound and southbound directions, and bike lanes along Nelson Road. This alternative maintains existing accesses located in this area, and accommodates all existing movements at the intersection. All of the proposed improvements are within the existing right of way.

Conclusion: No impacts to private property or existing access are anticipated as a result of this alternative.

Prioritization Criteria

Intersection Traffic Operation Analysis

The No Action alternative was analyzed as a baseline for the developed alternatives for comparison purposes. The results of the traffic operations analysis are illustrated in **Table 22**. The analysis worksheets are contained in Appendix D for reference.

Table 22: Hover & Nelson Intersection Traffic Operations

HOVER & NELSON	INTERSECTION TOTAL OVERALL 2040 LOS		INTERSECTION QUEUE LENGTHS (FT)							
			SB		NB		WB		EB	
ALTERNATIVE	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NO ACTION	D	F	792	2284	202	574	275	598	196	791
1	D	F	353	314	98	669	121	180	91	713
2	C	E	269	205	67	601	141	176	93	342

Network Traffic Analysis

The results of the corridor traffic operations analysis are illustrated in **Table 23**. The analysis worksheets are contained in Appendix D for reference. The analysis for this section represents how the alternative impacts the network as a whole, and not just limited to the intersection itself. The delay for each vehicle to pass through the intersection. For example, if traffic operations are poor at Hover / Nelson, queues may form that encroach on adjacent intersections. The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Good traffic operations along the corridor indicate that the configuration at the Hover / Nelson intersection do not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and Average Network Speed. The No Action alternative was analyzed as a baseline to compare the developed alternatives to. As a result the No Action average network speed is 15/7 mph for the AM/PM peak hours and the total network delay is 784.6 / 2,216.5 hours for the AM/PM peak hours respectively.

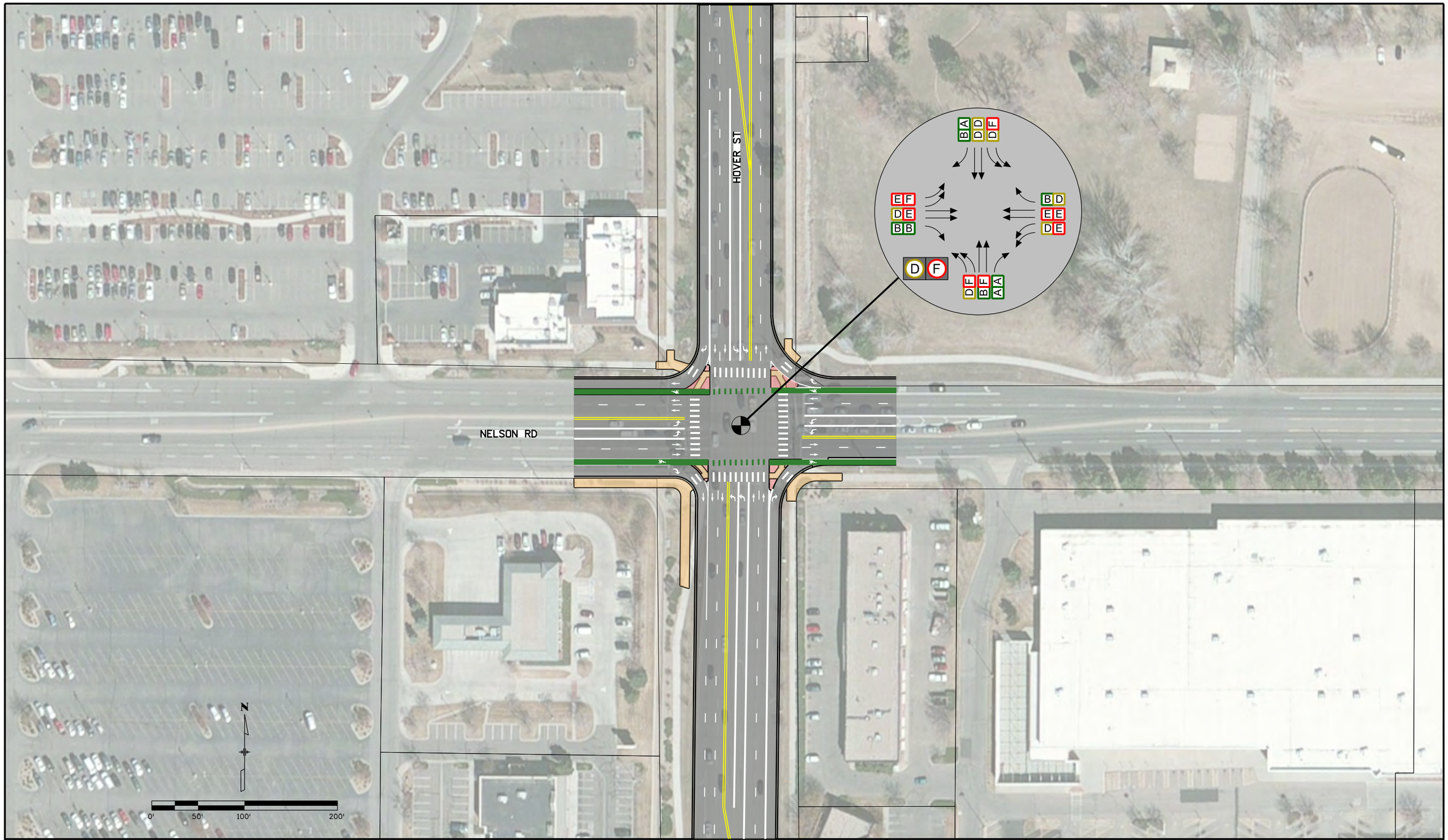
Table 23: Hover & Nelson Network Traffic

HOVER & NELSON	AVERAGE NETWORK SPEED (MPH)		TOTAL NETWORK DELAY (HR)	
ALTERNATIVE	AM	PM	AM	PM
NO ACTION	15	7	784.6	2216.5
1	22	14	140.9	458.7
2	22	18	140.5	331.5

The results indicate that Alternative 2 performs slightly better than the others overall, displaying the highest average network speeds and lower delay.

Alternative Screening Evaluation

The comprehensive results of the alternatives evaluation for the Hover Street / Nelson Road are illustrated in the **Table 24**.



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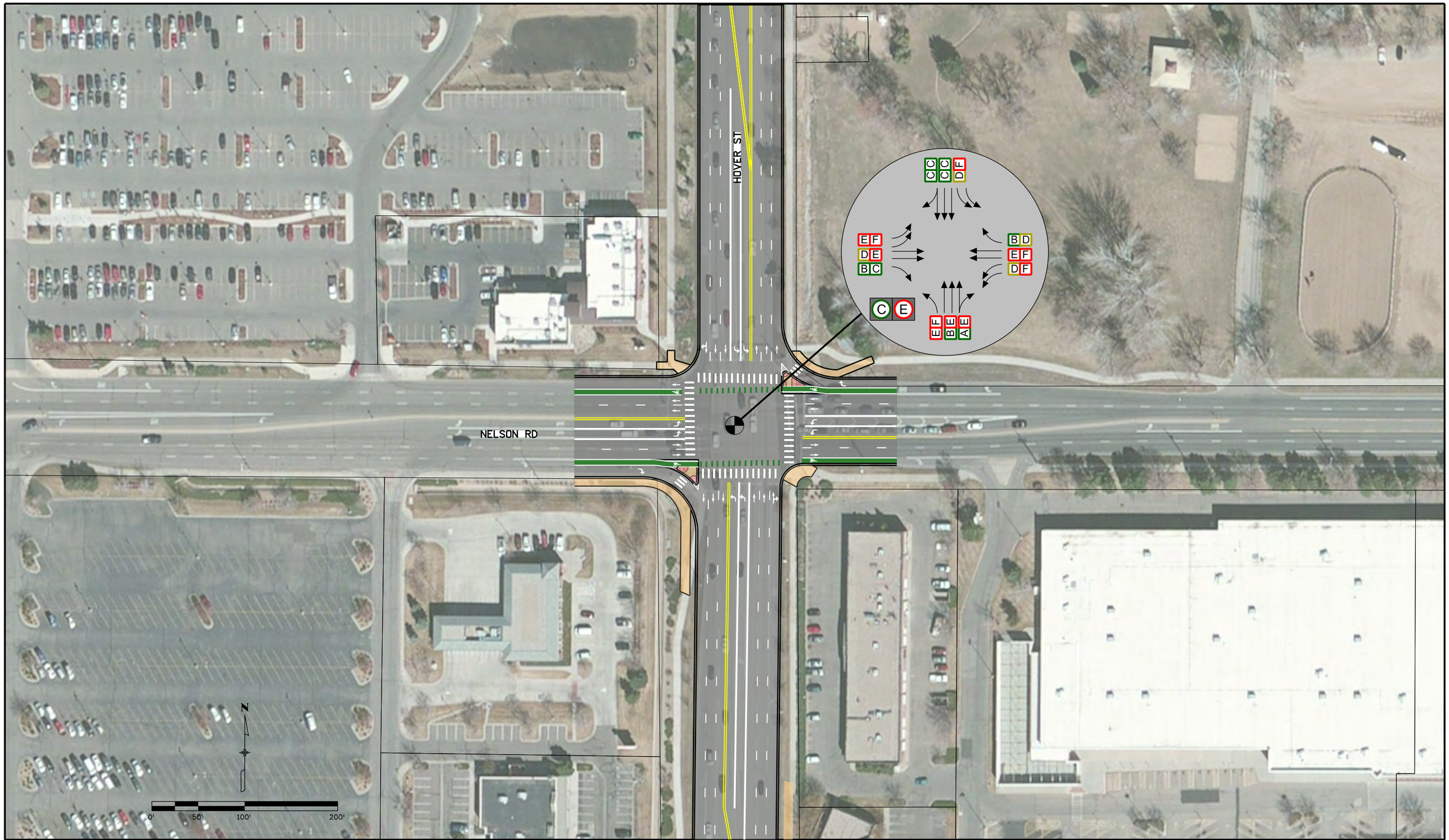
File Name: 12_Hover_Nelson_Conventional_Bike Lanes.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:100 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801					

As Constructed	ALTERNATIVE 1 CONVENTIONAL INTERSECTION			FIGURE 18
No Revisions:	Designer:	Structure Numbers		
Revised:	Detailer:			
Void:	Sheet Subset:	Subset Sheets:		



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File Name: 13_Hover_Nelson_Conventional 3 thru Lanes_Bike Lanes.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:100 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
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As Constructed	ALTERNATIVE 2 CONVENTIONAL W/ 3 THROUGH LANES			FIGURE 19
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Revised:	Detailer:			
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Table 24. Hover & Nelson Analysis Matrix

	Operations			Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
Description	**Level of Service & Delay**	**Total Network Delay**	**2040 Peak Hour Queue Lengths**	**Potential Vehicular Safety Benefits**	**Multimodal Conflict Reduction**	**Pedestrian / Bicycle Connections**	**Pedestrian / Bcycle Movement Comfort and Safety**	**Transit Accomodations**	**Right of Way Required (Acres)**	**Right of Way Required (# Properties)**	**Property Access Impacts**	**Consistency with Established Local and Regional Plans**	**Conceptual-level Probable Construction Costs**	**Constructability**	**Ability to Construct in Phases**	**Use of Existing Infrastructure**
Alternative 0 - No Action	🔴	🔴	🔴	⚫	⚫	🔴	⚫	⚫	🟢	🟢	🟢	🔴	N/A	N/A	N/A	🟢
Alternative 1 - Conventional Intersection with Dual Left-Turns	🔴	⚫	⚫	🟢	🟢	🟢	🟢	⚫	🟢	🟢	🟢	⚫	🟢	🟢	🟢	⚫
Alternative 2- Conventional Intersection with Dual Left-Turns + Shared NB/SB Through + Right Turn Lane	🔴	🟢	⚫	🟢	🟢	🟢	⚫	⚫	🟢	🟢	🟢	🟢	🟢	🟢	🟢	⚫

Nelson Road and Sunset Street

Introduction

General

Based on future projected traffic volumes contained in the Existing Conditions and 2040 Baseline Analysis Report, Nelson Road is expected to have approximately 21,000 veh / day.

Nelson Road is a four-lane arterial, running east-west from North Foothills Highway (SH7) in Altona to Ken Pratt Boulevard (SH 119) in Longmont. Sunset Street is a north-south primary collector running from Plateau Road to 11th Avenue at Loomiller Park. Nelson Road accommodates bicycle lanes and is considered part of the bike trail network in Longmont. Sunset Street is also a part of the bike trail network in Longmont with the north leg of the intersection accommodating a bike lane and the south a missing link with no accommodations for bicyclists. Connectivity and improvements to the existing bike network at this location is a goal along with operational improvements.

Problem Statement

The existing LOS for this intersection operates at C/C for AM/PM traffic, and is projected to degrade to LOS C/E in the year 2040, without any mitigating efforts according to the 2040 analysis. As a result of the Safety Study performed by DiExSys, the intersection presently has a Level of Service of Safety (LOSS) I for crash frequency and LOSS II for severity. No abnormal crash patterns were found.

Background Analysis

Crash Data

During the study period there were 22 crashes reported at the intersection with seven involving injuries and a total of 14 people reported as injured. There were no fatal crashes at the intersection during the study period.

Rear End collisions represent the largest amount of reported crashes at the intersection. Direct diagnostics analysis shows that there are no abnormal crash patterns readily susceptible to correction.

The intersection performs at LOSS-I from the crash frequency standpoint, reflecting l**ow potential for crash reduction**.

Traffic Operations

Existing traffic operations for this intersection operate at an acceptable LOS of C for both peak hour conditions. Without mitigation it is anticipated that the traffic operations will degrade to failing with a LOS C in the AM peak hour and a LOS E in the PM peak hour. See **Table 25** below.

Table 25: Nelson & Sunset Level of Service

	EXISTING		2040 NO ACTION	
	AM	PM	AM	PM
LOS	C	C	C	E
DELAY	22.6	30.9	23.9	57.8

Proposed Alternatives

No Action

The No Action alternative was evaluated as a baseline and serves to compare the other alternatives. This alternative includes the intersection in its original location and configuration. The intersection includes the following laneage:

- Northbound Approach: One exclusive left-turn lane and one shared through-right-turn lane.
- Southbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: One exclusive left-turn lanes, one through lanes, and one shared through-right-turn lane.
- Westbound Approach: One exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane.

Budgetary Cost Estimate: There is no cost assumed to design and construct this alternative.

Alternative 1 – Conventional Intersection

This alternative maintains a conventional layout and is the only build alternative for this location. It includes capacity improvements at the intersection as well as multi-modal considerations. Improvements include; a road diet along Sunset Street as a two-lane street with bike lanes in both directions, and improvements at the northbound approach to the intersection, changing the present shared through / right-turn lane to exclusive through and exclusive right-turn lanes. A dedicated right-turn lane in the eastbound direction is also included in the proposed improvements.

This intersection with auxiliary lanes includes the following laneage:

- Northbound Approach: One exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Southbound Approach: (Maintains existing configuration) one exclusive left-turn lane, one through lane, and one exclusive right-turn lane.
- Eastbound Approach: One exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.

- Westbound Approach: (Maintains existing configuration) one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane.

Figure 23 displays the proposed layout for Alternative 1.

Budgetary Cost Estimate: The budgetary cost estimate to design and construct this alternative is estimated to be between $800,000 and $1.2 million.

Preservation of Existing Access Accommodations

This alternative incorporates a road diet for Sunset Street south of the intersection, bringing the roadway down to 3 lanes and added bike lanes in both directions. A dedicated right-turn lane in the eastbound direction will also be included. This alternative removes access to the parcel on the southwest corner form Nelson Road, but maintains its full access off of Sunset Street. All other existing accesses located in this area are maintained, as well as all existing movements at the intersection. The proposed improvements are mostly contained within the existing right of way. Some improvements encroach the southeast parcel on Sunset Street and require acquisition to accommodate the proposed improvements.

Conclusion: Minor impacts to private property on the southeast corner will require acquisition to accommodate the proposed improvements. Existing access off Nelson Road to the parcel on the southwest corner is closed off and will require mitigation and conversations with the property owner.

Prioritization Criteria

Intersection Traffic Operation Analysis

The No Action alternative was analyzed as a baseline for the developed alternatives for comparison purposes. The results of the traffic operations analysis are illustrated in **Table 26**. The analysis worksheets are contained in Appendix D for reference.

Table 26: Nelson & Sunset Intersection Traffic Operations

NELSON & SUNSET	INTERSECTION TOTAL OVERALL 2040 LOS		INTERSECTION QUEUE LENGTHS (FT)			
			WB		EB	
ALTERNATIVE	AM	PM	AM	PM	AM	PM
NO ACTION	C	E	98	252	113	105
1	C	D	88	222	119	158

Network Traffic Analysis

The results of the corridor traffic operations analysis are illustrated in **Table 27**. The analysis worksheets are contained in Appendix D for reference. The analysis for this section represents how the alternative impacts the network as a whole, and not just limited to the intersection itself. The delay for each vehicle to pass through the intersection. For example, if traffic operations are poor at Nelson Road / Sunset Street, queues may form that encroach on adjacent intersections.

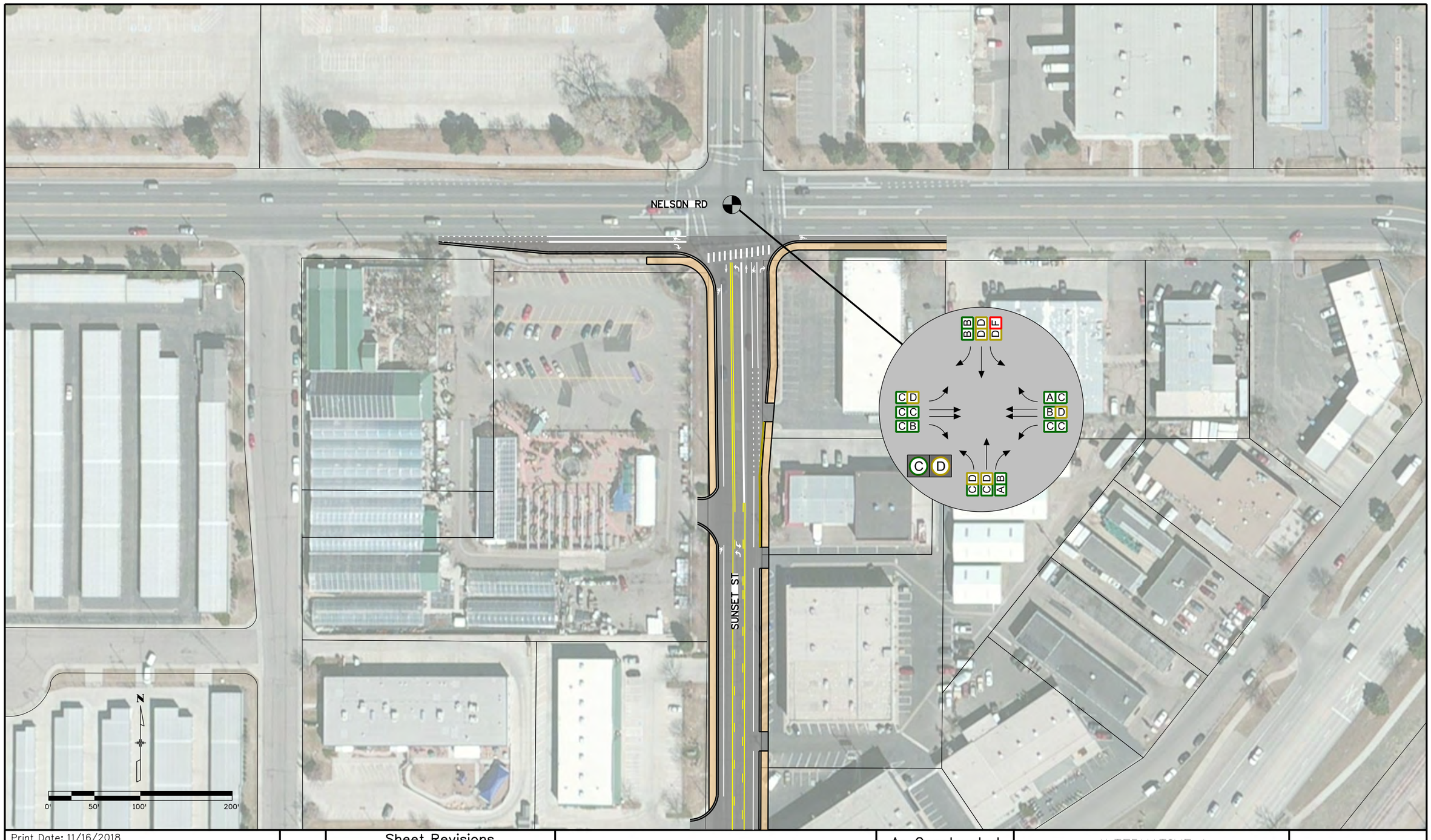
The impact to adjacent intersections in the corridor is represented by the vehicle delay at each corridor intersection. Good traffic operations along the corridor indicate that the configuration at the Nelson Road / Sunset Street intersection do not adversely impact the corridor as a whole. Results are represented as Total Network Delay, and Average Network Speed. The No Action alternative was analyzed as a baseline to compare the developed alternatives to. As a result the No Action average network speed is 15/7 mph for the AM/PM peak hours and the total network delay is 784.6 / 2,216.5 hours for the AM/PM peak hours respectively.

Table 27: Nelson & Sunset Network Traffic

NELSON & SUNSET	AVERAGE NETWORK SPEED (MPH)		TOTAL NETWORK DELAY (HR)	
ALTERNATIVE	AM	PM	AM	PM
NO ACTION	15	7	784.6	2216.5
1	22	18	140.5	331.5

Alternative Screening Evaluation

The comprehensive results of the alternatives evaluation for the Nelson Road / Sunset Street are illustrated in **Table 28**.



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File Name: 15_Nelson_Sunset_Conventional_3ln.dgn	Date:	Comments	Init.		No Revisions:
Horiz. Scale: 1:100 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801					

ALTERNATIVE 1
CONVENTIONAL INTERSECTION

Designer:		Structure Numbers	
Detailer:			
Sheet Subset:		Subset Sheets:	

FIGURE 20

Table 28. Nelson & Sunset Analysis Matrix

	Operations			Safety		Multimodal Improvements			Right of Way				Cost & Feasibility			
Description	**Level of Service & Delay**	**Total Network Delay**	**2040 Peak Hour Queue Lengths**	**Potential Vehicular Safety Benefits**	**Multimodal Conflict Reduction**	**Pedestrian / Bicycle Connections**	**Pedestrian / Bcycle Movement Comfort and Safety**	**Transit Accomodations**	**Right of Way Required (Acres)**	**Right of Way Required (# Properties)**	**Property Access Impacts**	**Consistency with Established Local and Regional Plans**	**Conceptual-level Probable Construction Costs**	**Constructability**	**Ability to Construct in Phases**	**Use of Existing Infrastructure**
Alternative 0 - No Action												N/A	N/A	N/A	N/A	
Alternative 1 - Conventional Intersection												N/A				

Multimodal Approach

Introduction

The Existing Conditions Report and 2040 Baseline Analysis Report identified multiple locations where levels of stress and safety for pedestrians and bicycles were of particular concern. Though the primary focus of this study is to evaluate alternatives to relieve vehicle congestion at the study area intersections, the secondary objective is to identify locations within the study area corridors for opportunities to improve multi-modal mobility and safety. Evaluation for multi-modal accommodations will be conducted at several locations within the Study Area. The approach incorporates tools to address how vehicular, pedestrian, and bicycle traffic interacts considering the needs of all travelers. The Study Area is part of a network with popular destinations and several barriers, lacking alternative routes, such that traffic is channelized to a limited number of arterial streets which must serve several modes of travel. As such, the intersections on these streets experience concentrated demand from autos, pedestrians, bicyclists, and buses during peak periods.

Objectives

Hover Street, Ken Pratt Boulevard, and Nelson Road are mature corridors within an urban context. Future improvement alternatives will seek to add capacity at the intersection level while focusing improvements on safety, operational, and non-motorized enhancements where mobility and safety concerns have been identified. Each of the three corridors will be reviewed based on separate priorities due to each having different roadway characteristics. For instance, Ken Pratt is a major arterial roadway and state highway that currently prioritizes vehicle throughput over access and sidepaths exist on both sides of the roadway providing connectivity for pedestrians and cyclists. Therefore, the multi-modal accommodations for Ken Pratt will include those improvements at the major intersections. Along Hover Street, however, pedestrian/bicyclist safety issues have been identified along with citizen feedback that the crossings along Hover Street do not feel safe. Therefore, Hover Street will balance multi-modal safety and connectivity with vehicle throughput at each intersection and uncontrolled access. Nelson Road has fragmented bicycle lanes, multiple access points, and is intended as a regional bicycle route. Therefore, the objective for Nelson Road is to develop improvements that prioritize pedestrian bicyclist safety and mobility and improve the crossings at the Nelson / Hover intersection. The following sections summarize how the multi-modal issues for each corridor are addressed.

Ken Pratt Boulevard

Ken Pratt Boulevard is a high traffic volume street with limited access as well as pedestrian and bicycle crossings. Detached sidepaths run parallel to the corridor on both sides. It is the intent of this project to maintain this corridor as limited access. Improvements to pedestrian crossings are shown on each individual alternative's exhibit. Proposed changes to pedestrians or bicyclists are only considered at the intersection with Sunset Street.

Ken Pratt & Sunset Street

The City of Longmont has plans to implement a road diet with the addition of bicycle lanes in both directions along Sunset Street. These improvements are taken into account and shown in the alternatives developed for this intersection.

The right turns from Sunset Street to Ken Pratt Boulevard are at a difficult angle making it challenging for drivers to see someone in the crosswalk. The following are potential countermeasures to address the conflict between pedestrians and right-turning vehicles.

- Right turn arrow: When the pedestrian push button is activated, the red arrow will activate then go to a flashing yellow. This communicates to drivers that they need to yield to people within the crosswalk.
- Leading pedestrian interval: When the pedestrian button is activated, the pedestrian walk symbol will be displayed before traffic signal, allowing waiting pedestrians and bicyclists the opportunity to get a head start crossing the roadway.

Hover Street

Hover Street has multiple uncontrolled accesses and few secure pedestrian and bicycle crossings making pedestrian and bicycle travel challenging. Many comments from the public open house mentioned a lack of comfort crossing Hover Street for that reason. It is recommended that safer crossings for pedestrians and bicyclists be implemented at both the signalized and un-signalized intersections in the study area. This includes adding push buttons, marked crosswalks, paint, delineator posts, and allowing enough time for crossings within the signal cycle. The improvements to pedestrian crossings at signalized intersections in the study are included in the exhibits for each alternative. Improvements to other driveways and intersections along the corridor are described below.

Hover Street and Clover Basin Drive

For Alternatives 1 and 2, red arrows prevent vehicles from turning right on red when the push button is activated. This reduces conflicts with on-coming traffic as well as people crossing the intersection. For all channelized right turns, a raised crosswalk could be implemented to slow vehicles entering the area where pedestrians and bicyclists cross as well as raising them to be more visible. For all intersection corners where traffic is turning onto Clover Basin Drive, paint and delineator posts provide a buffer between people waiting on the corners and turning vehicles. In addition to creating separation between pedestrians and vehicles, it slows vehicles down as they are turning.

The alternatives that scored the highest include Alternatives 1a and 2, both incorporate islands on the west leg which allow for shorter crossing distances and may serve as a refuge for pedestrians and bicyclists.

For pedestrians that need more time to cross, a specialized pedestrian push button can be installed that allows pedestrians to hold the button for a longer crossing time. This type of push button should be installed for the north and south legs of the intersection for all alternatives to improve the crossing experience across Hover Street.

Alternative 1A – Conventional with Dual Eastbound Right Turn Island

The following improvements have been identified for the west leg of the intersection: raised crosswalk for the channelized right turn and shifting the crosswalk back to allow pedestrians to cross before drivers accelerate/merge southbound on Hover Street. By incorporating the proposed eastbound right turn island, the crossing on the west side is shortened from approximately 95 feet to 72 feet.

Alternative 2 – Conventional with Dual Eastbound Right Turn and Exclusive Southbound Right Turn Lanes

No specific recommendations other than those described above. By incorporating the proposed eastbound right turn island as well as a southbound right turn island the crossing distance on the west side is further shortened from approximately 95 feet to 63 feet.

Hover Street Shopping Center Driveways

There are a number of shopping center driveways along Hover Street where small changes can greatly improve the conditions for pedestrians and bicyclists. Although these are not signalized intersections and do not have any vehicular recommendations, there are some improvements that can be made for pedestrian and bicyclist comfort to make those in the crossings more visible.

Trade Centre Avenue

At this access point, the crossing location can be slightly modified to allow better visibility and more flexibility when drivers are looking for a gap in on-coming traffic. Shifting the crossing to the west provides benefits to those turning in and out. For those making the right-in and left-in movements, the shift means people cross after vehicles have slowed down. For these movements and right-in movements, a car length's worth of space allows drivers more time to wait for people crossing after turning or wait for a gap in traffic. This allows drivers to separate functions of yielding to pedestrians and then pulling forward to wait while finding a gap in traffic. See **Figure 24**.

- Raised Crosswalk: A raised crosswalk at this location and at the right-in location just south of the intersection brings more attention to pedestrians in the crosswalk, and requires drivers to slow down.
- Painted Crosswalks at Driveways: Adding painted crosswalks at driveways also brings more attention to pedestrians crossing.

Figure 24. Hover Street & Trade Centre Avenue Multimodal Improvements

Village at the Peaks Main Driveway

For this driveway, the medians on the east and south legs of the intersection provide a safe refuge and waiting area for pedestrians and bicyclists unable to cross the entire street during the allotted time. Median noses will provide additional protection from turning vehicles as well as slow vehicles as they make the turning movement. A median nose on the north leg of the intersection would have little impact to vehicles, while median noses on the north and east legs of the intersection would cause turning vehicles to modify the turn arc slightly, slowing them down. See **Figure 25**.

Figure 25. Hover Street & Village at the Peaks Main Driveway Multimodal Improvements

Right-in Only

Clearly marked crosswalks at these accesses communicate to drivers that people may be present crossing the access point. These crosswalks should be located after cars have made most of their turn to maximize visibility after vehicles have slowed down. The turning radius can also be reduced so that vehicles slow down as they enter the turn. See **Figure 26**.

Figure 26. Hover Street Right Only Driveways Multimodal Improvements

Right-in/Right-out

For driveways that provide right-in and right-out access, the crosswalk can be set back from the curb to allow vehicles better visibility for people crossing and finding a gap within on-coming traffic to merge onto Hover Street. This is especially important for driveways that have a trap lane or do not have a designated lane. See **Figure 27**.

Figure 27. Hover Street Right–in/Right-out Multimodal Improvements

Nelson Road

Nelson Road has inconsistent facilities for pedestrians and bicyclists. Some areas have gaps in the sidepath network, and the on-street bike lane is not continuous through this section of Nelson Road.

A Level of Traffic Stress (LTS) assessment was done for Nelson Road for the Existing Conditions Report, LTS is expected to be a 3 or 4 for all scenarios. The results of that assessment are summarized in **Table 29** below.

Table 29: Nelson Road Level of Traffic Stress Assessment Results

		LTS
Bike Lanes Without On-Street Parking	WB Bike Lane Links	3
	EB Bike Lane Links	3
Mixed Traffic	WB Without Bike Lanes	4
	EB Without Bike Lanes	4
Pocket Turn lane (WB Nelson Road at Sunset Street)		3
Mixed Traffic in the Presence of a Right-Turn Lane (WB Nelson Road at Hover Street)		4

There are a number of possible cross sections for Nelson Road that provide benefits to pedestrians and bicyclists without significantly reducing level of service for vehicles. The bike lanes currently on Nelson Road are not present between Dry Creek Drive and Hover Street, making bicyclists vulnerable, especially

at the intersection with Hover Street and Nelson Road. Two potential cross sections have been developed for east of Hover Street and west of Hover Street.

East of Hover Street

Cross Section 1 – Buffered Bike Lanes with Improved Multiuse Path

Instead of standard bike lanes, these bike lanes are buffered from traffic with a 1.5 foot striped buffer. The space for these lanes would come from lane narrowing. There are multiple shopping accesses in between Hover Street and Dry Creek Drive, which makes a bike lane good for visibility. The multiuse path could be improved by widening to twelve feet for those still uncomfortable riding on-street. See **Figures 28**.

Cross Section 2 – Separated Bike Lane with Road Diet

Converting Nelson Road to one lane in each direction would provide enough space for a significant separation between the bike lane and vehicles. This greatly improves the comfort level for bicyclists, providing more separation than just a buffer. Maintenance of this facility can be challenging, given the separation from the roadway and inability to plow when plowing the roadway. A separate vehicle must be used to plow this facility, which can make it prohibitive for construction. See **Figure 28**.

West of Hover Street

Cross Section 3 – Bike Lanes

This cross section continues the bike lanes through the intersection at Hover Street to meet the existing bike lanes on the west side of the intersection at Dry Creek Drive. The space for these lanes would come from lane narrowing. See **Figure 28**.

Cross Section 4 – Woonerf for Bikes

Bicyclists would be separated from pedestrians and vehicles with a woonerf style street for bikes. This woonerf would provide an experience similar to a multiuse path but will be located against the curb to maximize visibility of the bikes to drivers. This would provide two-way bicycle movements and there would also be a bike lane on the other side of the roadway. The room for this cross section comes from eliminating a westbound trap lane. See **Figure 28**.

Nelson Road and Hover Street Intersection Alternatives

Alternatives were developed to accommodate multimodal traffic at the intersection of Nelson Road and Hover Street.

Alternative 1

Alternative 1 includes curb separated bike lanes painted green to bring driver attention to bicyclists. Dedicated bike signals in all directions are also included, along with high visibility crosswalk markings. See **Figure 29**.

Alternative 2

Similar to Alternative 1, Alternative 2 also propose green painted bike lanes for east/west bike traffic, as well as curb separated bike lanes on the northwest and southeast corners. High visibility crosswalk

markings are also included along with pass-thru islands for bicycles and pedestrians, shortening crossing distances across Hover Street and Nelson Road. See **Figure 30**.

Alternative 3

Alternative 3 also includes green painted bike lanes for east/west bike traffic, as well as curb separated bike lanes on the northwest and southeast corners. High visibility crosswalk markings are also included along with a pass-thru island for the southwest corner only, shortening crossing distances across the south leg of Hover Street and the west leg of Nelson Road. See **Figure 31**.

Alternative 4

Alternative 4 also includes green painted bike lanes for east/west bike traffic, as well as dedicated bike signal in the east/west direction. High visibility crosswalk markings are also included for this alternative See **Figure 32**.

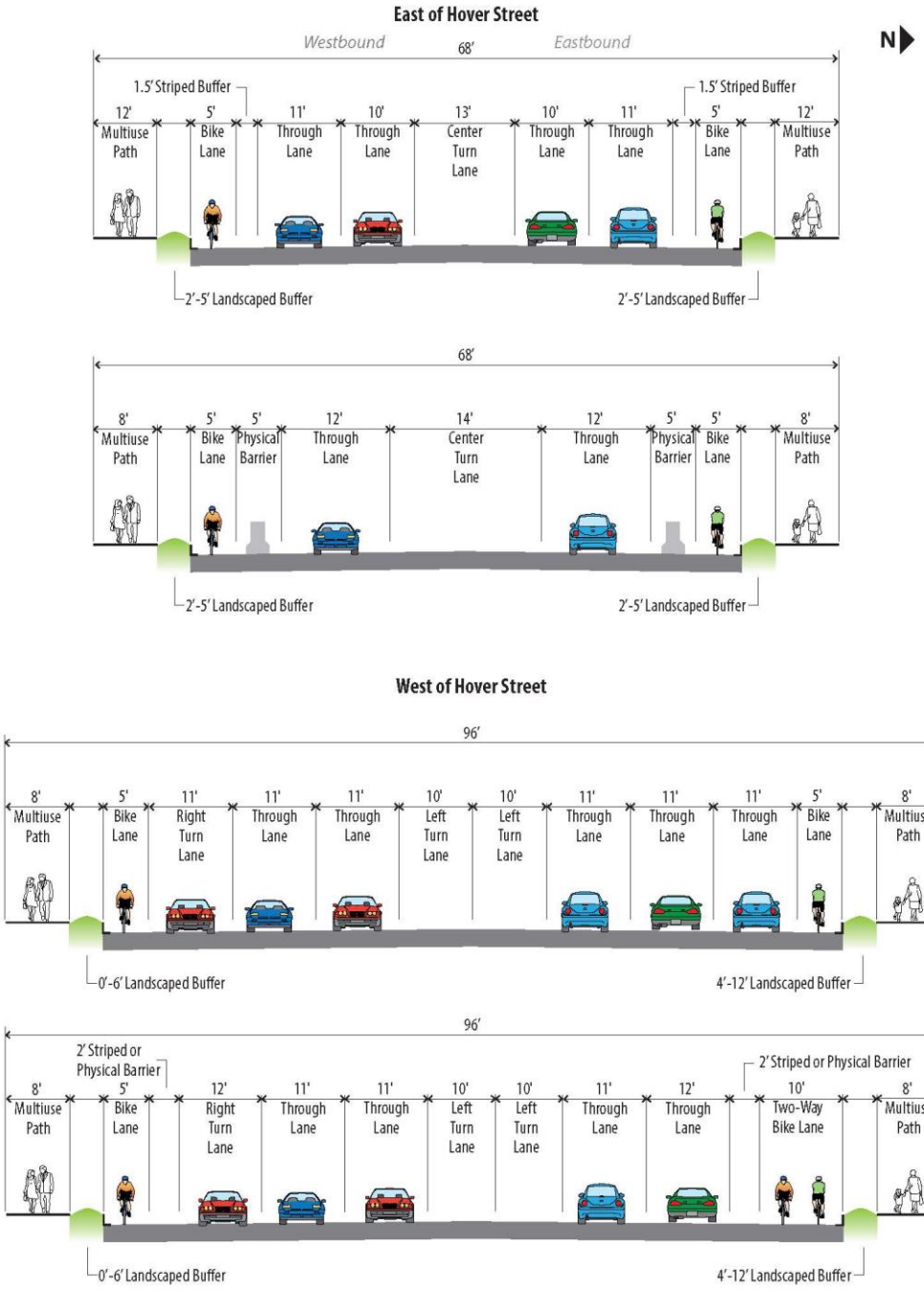

Figure 28: Nelson Road Cross-Sections

PEDESTRIAN IMPROVEMENTS:

* Curb separated bike lanes painted green.
* Dedicated bike signals.
* High visibility crosswalk markings.

HOVER ST

NELSON RD

N

0' 50' 100' 200'

Print Date: 12/13/2018

File Name: Pedestrian Improvements 1_Hover_Nelson.dgn

Horiz. Scale: 1:100 Vert. Scale: As Noted

Unit Information Unit Leader Initials

Short Elliott Hendrickson Inc.
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Sheet Revisions

Date:	Comments	Init.

HOVER STREET / NELSON ROAD

As Constructed

No Revisions:

Revised:

Void:

MULTIMODAL IMPROVEMENTS
NELSON ROAD-ALTERNATIVE 1

Designer:

Detailer:

Sheet Subset:

Structure Numbers

Subset Sheets:

FIGURE 29

PEDESTRIAN IMPROVEMENTS:
* Green painted bike lanes in E/W direction. Curb separated in NW and SE corners.
* High visibility crosswalk markings.
* Pass-Thru islands for bicycles and pedestrians.

HOVER ST

NELSON RD

N

0' 50' 100' 200'

Print Date: 12/13/2018
File Name: Pedestrian Improvements 2_Hover_Nelson.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

HOVER STREET / NELSON ROAD

As Constructed
No Revisions:
Revised:
Void:

MULTIMODAL IMPROVEMENTS
NELSON ROAD-ALTERNATIVE 2

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets:

FIGURE 30

PEDESTRIAN IMPROVEMENTS:

* Green painted bike lanes in E/W direction. Curb separated in NW and SE corners.
* High visibility crosswalk markings.
* Pass-Thru island in SW corner for bicycles and pedestrians.

HOVER ST

NELSON RD

N

0' 50' 100' 200'

Print Date: 12/13/2018
File Name: Pedestrian Improvements 3_Hover_Nelson.dgn
Horiz. Scale: 1:100 Vert. Scale: As Noted
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Sheet Revisions		
Date:	Comments	Init.

HOVER STREET / NELSON ROAD

As Constructed
No Revisions:
Revised:
Void:

MULTIMODAL IMPROVEMENTS
NELSON ROAD-ALTERNATIVE 3

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets:

FIGURE 31

PEDESTRIAN IMPROVEMENTS:
* Curb separated bike lanes in E/W direction, painted green.
* High visibility crosswalk markings.
* Install dedicated bike signals in E/W direction.

HOVER ST

NELSON RD

N

0' 50' 100' 200'

Print Date: 12/13/2018	Sheet Revisions		
File Name: Pedestrian Improvements 4_Hover_Nelson.dgn	Date:	Comments	Init.
Horiz. Scale: 1:100 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
Short Elliott Hendrickson Inc. Colorado Center Tower One Suite 6000 2000 South Colorado Boulevard Denver, CO 80222-7900 Tele. (720) 540-6800 (800) 490-4966 Fax (720) 540-6801			

HOVER STREET / NELSON ROAD

As Constructed
No Revisions:
Revised:
Void:

MULTIMODAL IMPROVEMENTS
NELSON ROAD-ALTERNATIVE 4

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets:

FIGURE 32

Recommendations

The Recommendations Report will describe each of the recommendations, illustrate concepts and provides discussion, analysis and phased implementation considerations. Final Recommendations will be influenced by ongoing community engagement, agency coordination during the Concept Development phase, and ultimately be a response to the issues that were identified and analysis conducted during the Inventory & Analysis Phase of the study.

Summary of Results

As a result of the findings in this document the following alternatives were the highest ranking, meeting the most criteria for each intersection:

Ken Pratt Boulevard & Hover Street

- Alternative 1a – Conventional Intersection and Westbound Grade Separation
- Alternative 5 – Grade Separated Interchange
- Alternative 7 – Single Point Urban Interchange

Ken Pratt Boulevard & Sunset Street

- Alternative 1 – Conventional Intersection & Road Diet

Ken Pratt Boulevard & Nelson Road

- Alternative 1 – Conventional Intersection
- Alternative 1a – Conventional Intersection & Westbound Bus Exemption
- Alternative 2 – Conventional Intersection & Three Eastbound Through Lanes

Hover Street & Clover Basin Drive

- Alternative 1a – Conventional Intersection With Dual Eastbound Right Island
- Alternative 2 – Conventional Intersection With Dual Eastbound Right and Exclusive Southbound Right Turn Lanes

Hover Street & Bent Way

- Alternative 1 – Conventional Intersection

Hover Street & Nelson Road

- Alternative 2 – Conventional Intersection With Dual Left Turns and Shared NB/SB Through and Right Turn Lane

Nelson Road & Sunset Street

- Alternative 1 – Conventional Intersection

Tables

Figures

Southwest Longmont
OPERATIONS STUDY

Appendix A

Summary of Public Comments

Southwest Longmont
OPERATIONS STUDY

Summary of Public Comments Received Surrounding April 5, 2018 Public Meeting

The Southwest Longmont Operations Study held a public meeting on April 5, 2018 at the City's Sunset Campus. This meeting was held from 4:30 – 6:30 PM in an open house format. Attendees were invited to learn about the study and to comment on the existing transportation conditions and their ideas for potential improvements. More than 40 members of the public attended the meeting.

Following is a summary of comments submitted by open house attendees on comment sheets and maps on tables, and those recorded by project staff during one-on-one conversations with attendees. This summary also includes comments submitted via email, phone call and online survey surrounding the meeting, through May 11, 2018.

(Note: all comments without origin listed are from online survey)

Existing Conditions and/or Issues

Hover Street & Nelson Road Intersection

- 3rd most dangerous intersection in town for both cars and pedestrians. Poor access to businesses on corner. *(open house comment form)*
- Needs stoplights/traffic lights! *(open house comment form)*
- Nelson and Hover can be intimidating, so I often take Rodger's Road or even Sunset to avoid the area.
- Particularly at Nelson and Hover: drivers running a red light (2-3 cars "sneaking" through well after the light has changed).
- Right turn at Nelson and Hover corner (SE) difficult to turn right into. *(team notepad)*
- Heavy traffic on Hover St north and southbound. Backups on Nelson Rd westbound, particularly as it crosses Hover. Very difficult to turn left (north) out of the shopping centers on the west side of Hover (Target, King Soopers, etc.).
- I have long been concerned about the Home Depot exit on Hover St. on the north end of the parking lot (north of Discount tires) It allows for both right and left turns into very busy traffic. People choose this exit, because the only alternative to go north on Hover is to drive all the way around the building & go through 2 traffic lights. I understand their impatience, but it is very dangerous. Just today I saw another crash caused by this risky left turn. Typically the traffic is never clear in both directions so drivers whip out into the center turning lane, and wait for the northbound lane to clear. Every time I see someone do this (and there is always a line of cars waiting their turn) I fear it will cause a crash.

Southwest Longmont
OPERATIONS STUDY

Hover Street & Ken Pratt Boulevard Intersection

- Left turns from 119 to Hover create congestion and long wait times. (*open house comment form*) In the morning, northbound traffic backs up at the left turn lane at Hover and Ken Pratt.
- More bus access here. (*open house comment form*)
- Difficulty going westbound Ken Pratt to Hover to Clover Basin. Too short of a distance to merge safely.
- Congested traffic on Hover and at the Hover/Diagonal intersection, dangerous pedestrian and bike crossings. Poor sidewalk/bike path in areas.
- Terrifying traffic (vehicle) at the intersection of Hover and 119.
- Hover northbound from Ken Pratt is gridlocked northbound during afternoon rush hour.
- In the mornings, much of the southbound Hover traffic is turning onto the Diagonal--which causes everyone to move to the right lane on southbound Hover. This eliminates the use of the second lane on Hover, since there is just one right turn lane onto the Diagonal. Additionally, the new addition of the stop light at the mall has made it harder to merge into this right southbound lane, and generally slows down traffic in both directions on Hover.

Ken Pratt Boulevard & Sunset Street Intersection

- Sunset/Ken Pratt (*open house comment form*)
- Lots of issues at the intersection of Ken Pratt & Sunset. Facing north and trying to turn left there is difficult due to no left turn arrow. It gets backed up, people get impatient and often run the light. One of the other thing we've seen many times is the person behind us turning left at the same time as us, which is very unsafe. We've also seen people turn left as soon as the light turns green before oncoming traffic. So many unsafe things happening here. Sunset gets so badly clogged at several times during the day due to this intersection, schools letting out and the trains.
- My biggest concern (and one that I have separately emailed Phil about before I knew that this area was being reviewed) is southbound Sunset at Ken Pratt. Sunset significantly narrows as soon as you cross the intersection and so lanes that are wide enough for most cars to pass cyclists north of Ken Pratt suddenly do not permit safe in-lane passing south of Ken Pratt. I have had numerous close calls as drivers try to pass while I'm going over the (Diagonal) train tracks. Similarly, while there are sharrows on the road as you continue south, people often turn left (east) at the truck place, Kansas Ave., and the school, which means that people continuing south often try to cut over aggressively to get around turning vehicles, again risking me as I ride south in the narrowed lane. Second, when I take the official bike route down Price, there is no good way to get from Price/Nelson/Ken Pratt to Sunset south of Ken Pratt. At times I take the lane and take Ken Pratt, but that's a harrowing journey and people often run the late yellow/early red headed NE along the Diagonal, making the left turn a bit dangerous-feeling. I once sat through a whole light at Ken Pratt and Sunset because the cameras didn't see me and never gave me an advanced green to go left from Ken Pratt (W, SW-bound) onto Sunset.

Southwest Longmont
OPERATIONS STUDY

Other Study Area Intersections

Clover Basin Drive & Hover Street

- Light at Clover Basin & Hover to go into Mall/Food Court is way too short.
- Timing of the lights in the afternoon seems to be problematic--much of the traffic is coming from the Diagonal, and heading north on Hover. If the light at Clover Basin and Hover isn't timed right, traffic in the left lane of Hover can back up into the intersection of 119 and Hover, due to the left turn lane at Clover Basin.
- Rush hour brings backups going south on Hover, making a left turn onto Clover Basin challenging.
- Difficulty getting from Ken Pratt southbound to Clover Basin westbound safely. Trying to cross lanes is at time impossible.
- As for car traffic, the intersection of Clover Basin and S. Hover gets very busy and backed up at all times of day for those turning west onto Clover Basin.

Other

- Cars headed from NB Sunset to WB Ken Pratt often not yielding to oncoming traffic - trying to “beat” cars driving SB on Sunset.
- Long waits to turn left when on NB Sunset to WB Nelson at peak traffic times.
- There is no protected way to turn left from Industrial Circle and head EB on Ken Pratt.
- Sky Brewing owner at Hover and Nelson: customers complain hard to get in parking lot. Suggest to connect Fairgrounds Lane across Nelson. *(team notepad)*

Intersections Outside of Study Area

- I live at Fordham and Clover Basin and have contacted the city three times over the last two years regarding this area. All the new housing to the west of Fordham must come east for groceries and gas. The only two streets to use are Nelson Road and Clover Basin. This makes it very difficult for us at Willow Creek estates to safely enter either street safely, especially during rush hour. A traffic light at Fordham and Nelson and Fordham and Clover Basin would help greatly.
- Clover Basin/Fordham signal/RAB. *(team notepad)*
- The intersection of Dry Creek and Nelson is the worst intersection I experience in all of Longmont. The intersection is too wide and folks heading south on Dry Creek trying to turn west on Nelson think there are two lanes on Nelson. Also folks heading north on Dry Creek and turning west on Nelson think they have the ride away even when folks are heading south on Dry Creek. It’s even worse trying to cross as a pedestrian!!! So many close calls there.
- Reduction of lanes westbound on Nelson at Dry Creek makes very uncomfortable right turn movements from Dry Creek to Nelson.
- I have witnessed too many near collisions where Dry Creek crosses Clover Basin by Texas Roadhouse. Too many trying to cross too fast.

- I believe the study area should reach out farther west to Airport Road. Clover Basin and Fordham intersection has too many accidents, intersection of Fordham and Nelson does not have adequate lighting to protect cyclists or pedestrians (especially with bus stops at that location) at night. Volume on Nelson makes left and right hand turns from Fordham nearly impossible during peak hours.
- Light at 9th and Hover is very short east/westbound. Cars are pushing the greenlight to get through. Any improvements for this considering the new development going in on SW corner? Suggestion: longer light in E/W direction. (*open house comment form*)
- Difficult at peak times to make left turn from Bent Way onto Dry Creek.
- The study area should be slightly expanded to the east to include the intersection of S. Sunset and Lefthand Dr. This intersection has seen traffic increases in the past few years, especially in the morning and afternoon because it is a major intersection for traffic to Front Range Community College, Flagstaff Academy Charter school, Sunset Middle school, CDC, Indian Peaks Elementary, and Burlington Elementary. Please reconsider your study area boundary.
- How many kids have to get hit (2 down so far!) or killed before Airport and Nelson is fixed?
- Many rush hour people are now taking Clover Basin west to turn south on Fordham due to the back up in the turn lane at Hover and the Diagonal. This only increases the difficulty for those of on Fordham to get out as there is now so much turning traffic as well as east west traffic on Clover Basin. Again, a traffic light here along with a cross walk would help immensely.
- Need improvements along Pike. *(team notepad)*
- Schools traffic need improved crossings of Airport. Need safe passage to cross Pike at Airport. Flashing crossings would be helpful. *(team notepad)*
- Insufficient curb cuts along Trade Center Ave to west of Hover.
- Charter school produces a lot of traffic congestion on Pike and Sunset Street during morning and evening drop off/pick up. *(map comment)*

Pike & Hover/95th Intersection

- Pike Road and Hover/95th. (*open house comment form*)
- Light at 95th and Pike is favoring Pike traffic, coming north on 95th long wait and sometimes two light cycles.
- Sidewalk on east side of Hover between Pike and railroad crossing is very narrow. Combine the two narrow paths/sidewalks. *(team notepad)*
- This study completely ignored the increasing problem for people going north on Hover/95th at Pike Road. When the development under construction south-east of this intersection is completed, it will seriously compound the problem. *(open house comment form)*
- I live off Hover just south of Pike. I go through the intersections of Hover/Pike and the rest of Hover several times a day. The worst part is the intersection of Hover/Pike. I really wish the city would make Pike a non-truck route. The big trucks have so much trouble making the turn which causes problems with the cars at the intersection. They either have to back up, move over or just wait for the truck to

turn. Pike was not built to handle that much traffic especially the big trucks. They should have to take Ken Pratt.

- I do not have a car traffic concern at the actual three circled intersections, leading into 119 and 95th the traffic light to the south needs work (95th and Pike). Maybe put in third lane at that light so north traffic going south never has to stop at light. Then you can have two left turn lanes going south if Pike gets an extra lane for a merge.
- Getting across Hover on Pike Rd is difficult and requires long round-about ways.

Ken Pratt & Sherman Street Intersection

- Sherman Street and Ken Pratt Blvd. *(x2)* (*open house comment forms*)
- S. Sherman St. at Ken Pratt is becoming a dangerous intersection. It needs a traffic light.
- Attempting to turn left at Sherman and Ken Pratt is next to impossible. The site line is too short around the curve and is extremely dangerous.
- During higher traffic times, trying to merge onto Ken Pratt Pkwy from S. Sherman Street is very difficult and dangerous. People are driving faster than the posted speed limit, and when pulling out from S. Sherman Street it can be very difficult to judge when it's safe to pull out.
- I work in Sherman Village which is on S. Sherman and Ken Pratt Blvd. Trying to turn left from S. Sherman to Ken Pratt Blvd takes forever due to traffic and it's scary. I know go out of my way to avoid making that left turn.
- Sherman Street and Ken Pratt Blvd needs a light and crosswalk. The ability to turn west onto Ken Pratt from Sherman Street is almost impossible during certain times of the day and with the new development and hotel going in, it is just going to add to the congestion and make it more difficult. Putting in a light at this intersection is a proactive approach to making this intersection safer for everyone! Thank you! *(open house comment form)*
- There needs to be a light at Sherman Street and Ken Pratt, it is a dangerous intersection it is impossible to go left and sometimes right especially with the new developments of the hotel and offices on that street plus there are houses coming in down the road this needs to be addressed as soon as possible.
- Traffic signal is needed at Ken Pratt and Sherman. *(team notepad)*
- The Sherman Street and Ken Pratt Blvd intersection needs a light as turning west onto Ken Pratt from Sherman Street doesn't have a sight line that provides for a safe turn and, at certain times of the day, it is next to impossible to pull onto Ken Pratt. With all the new development going on in that area, it would be a proactive measure to take to help prevent accidents at that intersection. Thank you for any consideration to this intersection. *(open house comment form)*
- Sight distance EBT at Sherman/119. *(team notepad)*
- It's hard to make changes to the infrastructure as is. The real issue is the funneling of high speed traffic going east bound from the Diagonal Hwy into a gridlocked pattern east of the RR tracks where traffic moves 5 mph or less. No one can make a left onto Sherman Street. The cars keep on coming and there is no break.

- At Ken Pratt/Sherman intersection it's impossible to turn left WB or NB. A roundabout would be great. *(team notepad)*
- Traffic gets so backed up heading north on South Sherman Street to turn. Please consider putting a stoplight at this intersection. *(open house comment form)*
- Cannot turn west from South Sherman Street to Ken Pratt Boulevard. Highly dangerous!! Please consider a stoplight at this intersection. *(open house comment form)*
- It is almost impossible and at sometimes quite dangerous to turn left onto Ken Pratt Boulevard from South Sherman Street. On average, I spend five minutes just waiting to turn left so I avoid it altogether by driving out of my way to avoid this intersection. Stoplight! *(open house comment form)*
- Very hard to turn left. Need traffic light. *(open house comment form)*

Hover Street

- Awful for bicycling today so no choice but to drive. (*open house comment form*)
- More traffic signals along ITS intersections. (*open house comment form*)
- There has been a significant increase in traffic and delays on Hover between Nelson and 119 with the additional traffic lights to accommodate the new shopping center. The traffic lights at the various intersections on Hover seem to be badly timed and I am often stuck at a red light with no traffic going the opposite direction.
- Congested traffic in the Hover area.
- I'm sure this is on your list and is more of a wish list item, but traffic on hover can be annoying at times. Nothing like a large city, so I know we are lucky so far. No idea what can be done about it as the city continues to grow, so good luck with that! *(email comment)*
- Usually get stopped at several stoplights in a row going north on Hover St.
- Traffic crossing 119 around Clover Basin and Pike is well timed.
- Need protected only turns on Hover. *(team notepad)*
- Hover dangerous. *(team notepad)*
- Sidewalk breaks crossing Hover Road too short. *(team notepad)*

Nelson Road

- Build safer off-road, more visible bus stops along the route. (*open house comment form*)
- Access control at Nelson. *(team notepad)*
- There are many turning conflicts at accesses to businesses along Nelson Road. Three are too much accesses/poor access into businesses along the roadway. *(map comment)*
- On Nelson (particularly between Airport and Hover, where the speed limit is 35 mph): tailgaters.

- Sidewalk is missing on south side of the roadway for a small stretch of roadway. Property owner expressed concerns about property value if sidewalk is installed. *(map comment)*
- No sidewalks on North side of Nelson from Hover to Airport. Light needed somewhere along Nelson so we can get out of our neighborhood (Nelson Park) at rush hour times.
- Need to expand the study for Nelson Rd west to 75th St. That road is already getting over congested. Thank you for the easy survey.
- Very annoying that you can't turn into Target parking lot if you're headed eastbound on Nelson Rd.

Ken Pratt Boulevard

- Speed traps. *(open house comment form)*
- The exit from the Mall/Food Court onto Ken Pratt always backs up past the stop sign with cars trying to turn West onto Ken Pratt.
- U-turns being made from EB Ken Pratt back WB, almost causing collisions with people leaving Village at the Peaks and headed WB.
- Difficulty crossing Ken Pratt all along the route. Inconsiderate, unaware, and aggressive drivers make biking in the area unsafe save for the fearless. "Share the road" type signage significantly lacking.
- On Ken Pratt, there is no comfortable way to ride or even walk without a lot of concern.

Sunset Street

- Traffic backs up then people use side streets.....like my street....Sunset....as an arterial. People speed and run the stop signs.
- Sharrows on Sunset? Sunset mph *(team notepad)*
    - Lead pedestrian signal at Sunset (N-S), bicycles (FoCo)
    - Pedestrian visibility at Sunset
    - Sunset operations, short-timing N-S
    - Bike lanes on Sunset
    - Wayfinding sings for bike paths
    - Trains backing up traffic at Pike

Other Roadways

- Impossible to make left turns on Clover Basin & Dry Creek.
- People also travel way too fast on Clover Basin from Hover to Airport.
- Bike lane at Clover Basin. *(team notepad)*

Roadways Outside of Study Area

- Sherman Street. *(open house comment form)*
- I ride the RTD J bus from Longmont to Boulder and back almost every work day. Crossing Airport at Pike Rd is not safe no matter which direction you cross. I am not sure what can be done, as Airport is four lanes plus a center turning lane. I am sure the motorists are too happy with us peds and vice versa. By the way, at times there can be 6 of us catching the Boulder Bound J bus at 7:10 am. Easily another 4 or so catching the 6:45 am bus.
- Increase lanes from Hover/95th past Pike (if possible). (*open house comment form*)
- Better access to Airport Rd from 95th would reduce much traffic on Hover. The only access is a dirt road Ogallala.
- I would like the study area to include Clover Basin as well. Due to issues with the Ken Pratt, Hover and Diagonal intersections, many drivers are now using Clover Basin to circumvent the main roadways. this is causing a dangerous situation along Clover Basin, especially to pedestrians trying to cross this roadway.
- I would like to see the schools' traffic addressed to the west of the area. Parents have to wait 5-10 minutes (sometimes at the front of the line) to turn left on Clover Basin from Grandview Meadows after Altona drop off. A stop sign would really help there.

General Issues

- This area is an island surrounded by high speed dangerous roads, which makes it unsafe for pedestrians and people riding.
- New apartments and senior living center at Pike Road/Hover are creating a lot of traffic and straining the roads. *(phone call)*
- It is a cluster!
- The area is unsafe, loud, sprawled out, and frankly quite ugly.
- High volume at rush hour and flow disruption due to railroad trains.

Ideas To Improve Operational Performance and Safety For All Users

(considering vehicular traffic and transit—all comments focused on bicyclists and pedestrians are within the next two sections)

Hover Street & Nelson Road Intersection

- "No right on red" signs/enforcement. (*open house comment form*)

- Create better access to local businesses by adding left turn from westbound Nelson and right turn from northbound Hover. Add bike lanes. (*open house comment form*)
- Traffic lights. (*open house comment form*)
- Increase left turn signal & straight signal green light time if headed westbound on Nelson and crossing Hover.
- Remove all lights except for the following major intersection: Nelson-Hover. This will simplify all intersections and remove delays at lights.
- At Hover & Nelson, at the Home Depot exit on the north end of the parking lot: I would like to see a right turn only barrier. Or better yet a reconfiguration of the whole block (Home Depot & Target). Ideally I would like to see a Rotary at the intersection of Nelson & Hover but I don't know if the citizens would be ready for that at a major intersection.

Nelson Road & Ken Pratt Boulevard Intersection

- More lanes, if possible. (*open house comment form*)
- Gridlock starts 3:30 pm on while heading eastbound on Ken Pratt Blvd just past the RR tracks. Traffic is terrible. Ken Pratt can't handle the load. Having eastbound traffic from Nelson that merges onto eastbound Ken Pratt makes it worse! It doesn't appear that cyclists have safe riding access along Ken Pratt - it's just too dangerous for them.
- Ken Pratt east of Nelson is worse than any of the other streets in the study area. *(team notepad)*
- Ken Pratt Boulevard & Hover

Nelson Road & Ken Pratt Boulevard Intersection

- Dedicated bus lane. *(open house comment form)*
- Could Price be improved off Nelson to bring traffic to Boston Ave (over the Greenway)? The intersection of Price/Nelson/Ken Pratt could be better designed to bring traffic that is looking to go east/north to get off of Ken Pratt Blvd.
- Nelson/Ken Pratt should be studied from both angles. Traffic flow eastbound from Nelson and eastbound Ken Pratt causes a nightmare gridlock from RR tracks east past Main St. Traffic is STOPPED.
- Remove all lights except for the following major intersection: Diagonal-Nelson. This will simplify all intersections and remove delays at lights.

Ken Pratt Boulevard & Hover Street Intersection

- Flyover left turn lanes to allow no stop for left turns and reduced wait time for through traffic. (*open house comment form*)
- Consider a flyover ramp for eastbound left-turning vehicles at Ken Pratt/Hover intersection. *(map comment)*

- Eastbound 119 turning left onto Hover conflicts with westbound Ken Pratt. Consider a flyover for the eastbound 119 to northbound Hover movement. *(team notepad)*
- Consider roundabouts, especially Ken Pratt & Hover. *(team notepad)*
- More routes besides BOLT (i.e., J, 232, etc.) (*open house comment form*)
- Ken Pratt/Hover - maybe 119 stops longer so drivers coming from Ken Pratt (southbound) can safely get all the way over to make the left onto Clover Basin.
- The major intersection of Diagonal/Hover/Pike/Ken Pratt should be moved south to Pike, by eliminating the stretch of Diagonal between Pike and Hover. Intersection should be Diagonal/Hover/Pike (this was the original intent going back to the 1970's).
- Longer left turn lane at Hover/Ken Pratt.
- The westbound turn lanes for Hover/Ken Pratt need to be extended.
- A second eastbound turn lane onto Ken Pratt from southbound Hover. This gets backed up so you can't turn onto Hover from Clover Basin. Many drivers are driving thru the mall to get around this backup.
- A second southbound merge lane to the Diagonal from Hover. This gets backed up thru the light at Clover Basin and Hover causing drivers to use smaller arteries (i.e. Clover Basin and Fordham Drive) to get around the back up.
- Consider a displaced left-turn option for Ken Pratt/Hover intersection. *(map comment)*
- Is there any way to “straighten out” Ken Pratt/Hover intersection? *(map comment)*

Ken Pratt Boulevard & Sunset Street Intersection

- Get rid of the left turn from Sunset onto Ken Pratt: send that traffic east via Nelson.
- There needs to be a dedicated right turn lane on Sunset and Ken Pratt. *(x2)* There are two lanes going straight ahead and one could easily be a dedicated right turn lane. That would significantly help traffic turning from Sunset onto Ken Pratt.
- Sunset needs widened at Ken Pratt so there can be actual turn lanes. It also needs left turn lights specifically. This intersection is becoming increasingly busy and unsafe. Sunset needs to be widened to cut down on traffic between Ken Pratt & Nelson.
- A turn signal/dedicated left turn lane is needed at Ken Pratt and Sunset. Many people end up running the light because they need to turn left from Sunset onto Ken Pratt but can't because of oncoming traffic.
- Left turn signal driving north on Sunset and turning west (left) onto Ken Pratt.

Other Study Area Intersections

- Increase lanes from Hover/95th past Pike (if possible). (*open house comment form*)
- Hover/Bent Way - traffic is getting a little busy on Bent Way and backs up mostly during rush hours - a light would be helpful.

- Better line striping at Hover/Bent Way.
- Southbound on Hover the turn lane at Clover Basin to go west should be opened up as a thru for people getting on 119 headed to Boulder. It's a mess for everyone after this intersection trying to get over to merge onto 119 and people going straight to continue on to 95th in the right lane.
- Add traffic lights at Hover and Trade Center Drive to allow people to exit shopping areas easier.
- A second west bound turn lane from northbound Hover to Clover Basin. Again, the turn lane backs up so much it blocks Ken Pratt at rush hour.
- Remove all lights except for the following major intersection: Diagonal-Sunset, Sunset-Nelson. This will simplify all intersections and remove delays at lights.
- The left turn onto Clover Basin from Hover can be very long. Any way to draw people away from that, encourage people to use Fordham to Pike or Clover Basin maybe?

Intersections Outside of Study Area

- Paint lane lines at intersection of Dry Creek and Nelson.
- Nelson and Dry Creek desperately need left turn signals now.
- The worst intersection is just outside the study area, Clover Basin and Fordham. A traffic light is desperately needed. the intersection is bad now, with coming expansions and annexations it will become more crowded and more dangerous.
- Longer turn time at Clover Basin off Hover. Maybe cameras (and signs to indicate) that catch vehicles "sneaking" through a red light. Another issue I've seen at Hover and Clover Basin and at Hover and Boston was a failure to yield to a pedestrian who HAD THE CROSSING SIGNAL. In both cases the driver was making a left turn and didn't seem to consider or realize that a pedestrian might be crossing. In one case, the driver angrily honked at the pedestrian (who had the right of way!)
- Is there any way to place a traffic light on the corner of Ken Pratt Blvd and S. Sherman? Or at least something that requires the cars to slow down as they come through that intersection so that it is easier to pull out onto Ken Pratt Blvd from S Sherman Street.
- It is difficult to turn left out of Sherman Street onto Ken Pratt Boulevard. Is there a possibility of installing a signal at that intersection? *(map comment)*
- (Ken Pratt Blvd/Sherman) There needs to be a light so people can make a safe left turn onto Ken Pratt from Sherman. Then there could also be a crosswalk for pedestrians to cross safely as well.
- I am the owner of Larimore Chiropractic & Massage and my business is located in Sherman Village. The intersection at S. Sherman St. and Ken Pratt Blvd. is too busy that I avoid making a right or left turn there. I'll go out of my way to get on Ken Pratt Blvd. at a traffic light.
- Study 95th and Pike: I am concerned city changed this light to favor Pike for the new money development apartments and Balfour site on Pike and 95th.
- This may also cause more traffic northbound on Sunset out of the study area, Sunset/Boston could be expanded to compensate.

- The stop sign at Fordham & Clover Basin can also be a long wait for the people on Fordham. Would not want a stop light or a 4-way stop. What about a roundabout at this location?
- These changes would create a problem as northbound travels on the Diagonal attempt to turn right on Hover followed by left on to Pike. Extend westbound Pike to Diagonal Highway so travelers going north on the Diagonal can turn directly onto Pike and wait at intersection with Pike and Hover.

Hover Street

- Widen roads past Pike. (Future consideration with Niwot.) *(open house comment form)*
- I frequent Pike Road, Hover to Clover Basin area. Longer left turn lanes would be nice in this area, but since that is physically impossible, longer turn signal time would be nice.
- We travel in to Longmont typically via the LoBo trail. It's easy enough to access Ollin Farms from there. However, my husband still needs to get across Hover/95th to get to work at FRCC. Is there a way to treat that intersection more like a 4 way with the west side better designed for bikes to cross? We also find that getting north is still a challenge. I tried biking on Hover 20 years ago and it was terrible and has only gotten worse. Yet this corridor could provide access to locations we would like to reach whether it's shopping, the farmer's market, or friends' houses. There does not also seem to be a direct way to get to downtown. I don't want to ride far east to get the trail that does approach downtown.
- Traffic turning left from the parking lot for the tire shop & Home Depot. Maybe add lines to that "intersection" so that vehicles waiting to turn left are not blocking vehicles that want to turn right. Left-turning motorists tend to stop such that no vehicles can turn right until the left-turning ones have moved.
- Hover with additional lanes to at least 3rd Ave....then changing traffic signals north of 3rd to get people through town. How much of Hover traffic is actually people going north but not wanting to sit in the Ken Pratt backups to access 1-25?
- I'm not sure how to improve the right hand lane issue on southbound Hover--as a second right turn lane would complicate the intersection.
- Make Hover a one-way road south bound.
- The Cadillac solution would be to install a bridge (or tunnel) over Hover heading west on 119.

Nelson Road

- Build safer off-road, more visible bus stops along the route. (*open house comment form*)
- Reduce Nelson to one car lane because it narrows to one lane west of Hover anyway.
- Allow turns into Target parking lot if headed eastbound on Nelson.
- Make Nelson a one-way road westbound.
- Is this a study to see if Nelson Road needs expanded to 4 lanes plus turning lane? I hope city considers the side streets within this study area. Dry creek/Nelson and Dry Creek/clover basin are very dangerous intersections, especially for pedestrians.

- Nelson needs to be a 4-lane road heading west from Hover to Airport and then to 75th eventually. That road is busy already and will only get busier with the development at 75th.
- Is there a possibility of an access from Nelson Road to Village at the Peaks shopping center? *(map comment)*

Ken Pratt Boulevard

- Improve signal timing along the corridor to accommodate increased traffic along Ken Pratt. *(map comment)*
- Stop light and crosswalk. *(x2)* (*open house comment form*)
- Cut back on those (speed traps?). (*open house comment form*)
- On Ken Pratt, driveways and small roads should be marked to look for bikes and peds, as well as to add stop bars or bumps to alert drivers of people crossing. The path is better on the north side than the south side of Ken Pratt, but it is almost impossible and seems dangerous to cross Hover from either side. This makes the tunnel under 119 a problem, unless you intend to just ride the Greenway and not trying to get anywhere on Ken Pratt.
- High traffic volumes make biking and driving difficult especially during 'rush hours'. If Hwy 119 thru traffic could be diverted south of town that would remove a load of traffic and congestion.
- No U turns sign on Ken Pratt.
- Create a direct route west from Ken Pratt to Clover Basin.
- Ken Pratt needs another lane each direction.
- I see the biggest issue is traffic volume on Ken Pratt at rush hour from Hover to Main St. My suggestion would be to build a bypass route starting at Hwy 119/Airport Rd./Ogallala Rd intersection and proceed east and then north to tie into Ken Pratt just west of the St. Vrain river crossing. I think shifting through traffic from Ken Pratt to a bypass route will not only free up Ken Pratt's flow but might draw some traffic off Hover.
- Make the Diagonal highway a one-way road north east bound.

Sunset Street

- Road diet – make one car lane multi-use (i.e., widen sidewalk) (*open house comment form*)
- Road diet for Sunset Street (2 lane roadway) *(map comment)*
- Convert Sunset to a 4-to-3 road diet.
- I sketched out these proposals previously: 1) north side of Sunset, facing south https://streetmix.net/-/660849; 2) south side of Sunset, https://streetmix.net/-/628058
- Make Sunset a one-way road north bound.
- Need bike lanes and road diet on Sunset between Nelson and Pike (+4) *(team notepad)*

- The most direct cycling connection from Creekside neighborhood to downtown Longmont is via Sunset, which is well-suited as a commuting corridor both north of Nelson and south of Pike, but is configured as a 4-lane road with no bike lanes from Nelson south to Pike. The wide lanes encourage automobile drivers to drive fast and presents a hazard to cyclists.

Other Roadways

- The westbound turn lanes onto Clover Basin from Hover need to be extended.

Roadways Outside of Study Area

- Possibly improving 75th St to 4 lanes and creating a north bypass for Longmont.
- Developing additional roads, like Fordham from Airport to Nelson, and maybe even Pike from the Diagonal could relieve the automotive stress in this area. I think if more people who would otherwise take a left at Hover off of 119 (going east/north) could take Fordham to Clover Basin to Hover or Fordham to Nelson to Hover would take it, removing the pressure on 119/Hover.
- Eliminate railroad crossing near Pike Street on Hover. *(map comment)*

Transit

- I live near County Line between 9th and Ken Pratt. I would like bus service in the area. There is currently none. This is important as people get older so they can still be mobile. *(phone call)*
- Biking to the BOLT bus stop at the Mall at the Peaks and having to ride through parking lots with people backing up and not seeing me OR ride in front of stores where peds aren't expecting a bike.
- We should have a more seamless connection to the BOLT at the nice covered bus stop and I shouldn't have to walk in the rain and snow.
- Busing using the 324 to the BOLT at the Mall at the Peaks and still having to cross the Clover Basin/Hover intersection which is not friendly to peds or bikes.
- The 324 bus should go through the Mall at the Peaks.
- A charming jump on jump off trolley! Bring some old charm to Longmont!
- I also feel a twice hourly free "Shopper's Shuttle" (perhaps sponsored by local businesses) would be fantastic.
- Closer connections between local and regional buses at the Mall at the Peaks.
- I have only walked much in this area on occasion. But with good bus access, it's a great way to get to some of these areas.
- Another bus that goes cross town so it doesn't take 40 minutes to get downtown, nor an hour and a half to go to Pace and 17th from Airport and Nelson road.
- The Bus stop at the mall should have an obvious bike route to it, marked at intersections, etc. Now the intersections are designed only for cars.

General Improvement Suggestions

- Add the dotted yellow lines for left-turning vehicles, such as those for left-turning traffic at US 287 & Pike Rd. Too often vehicles making left turns at intersections with 2 left-turning lanes veer into the adjacent lane.
- Narrowing car lanes
- Add photo radar for speed and red light violations.
- Increase enforcement of running red lights. Increase safety for bikes.
- Using more protected “Left turn on arrow only”.
- No improvement needed. There are more pressing issues for our city.
- I honestly don't know the solution but it seems all of these intersections present problems for cars, pedestrians and bicyclists. What would be safest and most convenient for all?
- I’d like to see something truly creative. What about making the entire major triangle one-way? When heading south you go through Nelson and Hover, when heading north you go through the Diagonal. This would allow traffic to flow more efficiently allow for wider roads and multi-use paths.
- The train causes so many problems since it's so close to the Diagonal. It would be great if there could be an overpass/underpass. Also the lights don't seem to be timed to get traffic moving all along Hover.
- BETTER STREET SIGNS - ALL REFLECTIVE MATERIAL ON THE SIGNS AT MAJOR INTERSECTIONS IS WORN OUT. AT NIGHT IT'S IMPOSSIBLE TO READ THE ROAD NAMES.
- I think the intersections are handled pretty well, especially with the new pedestrian improvements at Ken Pratt & Hover intersection. Still a little difficult to navigate this intersection on bike or foot, but getting better. The other intersections don't seem to be an issue for me. The train tracks at Nelson and Ken Pratt can cause lots of backup issues when a train is crossing, but other than building an overpass/underpass for either trains or cars, I'm not sure it would be able to get much better. Overall, I think ALL INTERSECTIONS IN LONGMONT could be improved by coordinating smarter, more efficient timing of lights, sensors, and especially pedestrian signals. I see lots of wasted time and fuel from lights changing unnecessarily or inefficiently, and it seems to be more efficient in other communities.
- Glad the City is studying what to do. It is currently a horrible traffic mess. One obvious solution is to require Burlington Northern railroad to underground its railway thru that area. It's been done in many other communities, like Solana Beach, California. See, https://en.wikipedia.org/wiki/Solana_Beach_station. See also, http://www.sandiegouniontribune.com/business/growth-development/sdut-carlsbad-considers-a-tunnel-for-trains-2015dec14-story.html.
- Can there be a quiet zone/time for trains? *(map comment)*

Southwest Longmont
OPERATIONS STUDY

What would make travel easier for pedestrians in the study area?

Hover Street & Nelson Road Intersection

- I would love to see a corner-to-corner pedestrian option at Hover/Nelson, but I know that is unrealistic.
- Need a safer way to cross Hover at Nelson. Make people more aware of foot/bike traffic. People simply slow at stop signs and red lights making a right hand turn. No one stops.

Nelson Road & Ken Pratt Boulevard Intersection

- Safer pathways for peds and bikes at Nelson/Ken Pratt.
- Extra yield signs at Ken Pratt and Nelson.
- The intersection at Nelson and Ken Pratt has the added difficulty of the railroad crossing so close by, which makes it extremely difficult to cross Ken Pratt at that point, but I don't know how many people actually need to make the crossing in that direction. Would it help to close the sidewalk next to the tracks so that people don't try to cross Ken Pratt right there? Crossing Nelson means watching for people turning right onto Nelson from going south on Ken Pratt - which they are allowed to do even if the light is red (after stopping.) Are there pedestrian request crossing buttons at that intersection? If not, there should be, along with signs that vehicles must yield to pedestrians.

Ken Pratt Boulevard & Hover Street Intersection

- Mid-block crosswalk between coffee shop (Brewing Market). Oskar Blues to allow access to underpass/bus stops for FRCC students. (*open house comment form*)
- LOVE the underpass on 119 to get to Oskar Blues - This intersection is scary to cross even on foot, much less with kids.
- Need wayfinding signs to LoBo trail and safer bike access to LoBo trail. For now this is the primary gateway for cyclists to access Longmont businesses and one in Gunbarrel/Niwot. (*open house comment form*)
- Wayfinding signage for Lobo Trail to/from north of Ken Pratt and Hover. *(team notepad)*
- Ken Pratt & Hover is impossible to cross on foot or by bike now. More development will make it worse. under pass or overpass for non-motor vehicles might help.
- Many expressed a want for a pedestrian/bike underpass on east leg of Ken Pratt/Hover for pedestrians. Many felt the intersection as a whole was not safe for peds/bikes crossing. *(map comment)*
- Maybe make alternatives for peds/bikers to keep them away from the Hover/Diagonal intersection (like underpass or alternative crossing area) because it is so dangerous and that would hopefully improve traffic flow too.

- At Hover/Ken Pratt: the underpass should have been under Hover instead of Diagonal Highway. Speeds are too high and worried that too many drivers run the red light at 119/Hover for it to be a safe Ped crossing.
- Ken Pratt and Hover is basically impossible for a pedestrian, so it is avoided.
- Underground crossings at 119(Ken Pratt) and Hover.

Ken Pratt Boulevard & Sunset Street Intersection

- Very long light (and delay after pushing the button) to cross Ken Pratt and Sunset.
- The intersection at 119 and Sunset: My son bikes through this intersection many days. He hasn't had a problem that I know of, but the offset crosswalk worries me. Maybe the data you collect will show there really isn't a problem there, and it's all in my head, but I hope it's at least being looked at.
- Improve ped/bike crossing timing at Sunset. Is there a possibility of installing leading ped/bike intervals? *(map comment)*

Other Study Area Intersections

- Hover/Clover Basin crossing is large, with short crossing times for peds. I have almost been hit there several times while crossing.
- Crossing at Hover and Clover basin is very dangerous. We've almost been hit twice as the walk times are too short (and we walk fast).
- Design Clover Basin/Hover intersection so that peds can cross to an island and clear right turning traffic before the light changes (or red on red is allowed).
- Sidewalk on the east leg of Hover Street/Bent Way is missing. Sidewalk access is missing in several parts going into the Village at the Peaks shopping center. *(map comment)*

Hover Street

- It's hard to cross any of these roads. The underpass on Hover at the mall helps a lot, but not enough to access the St. Vrain greenway.
- LOVE the underpass on Hover to get to Village at the Peaks.
- More "press button to activate marked crosswalk" areas along KP Blvd and Hover.
- All of the ped crossings on Hover feel dangerous, and discourage walking to the new mall.
- Better and safer crossings are needed across Hover to the new Mall to encourage people to walk.
- Pedestrian/bike visibility is poor along entire roadway at the intersections. Improve pedestrian/bike visibility at intersections. *(map comment)*
- Pedestrians are sometimes crossing Hover at the train tracks instead of using crosswalks.
- If you are walking north on Hover on the west side sidewalk, crossing the intersections are dangerous because the drivers attention is focused on car traffic. Need an alternate path away from Hover.

- Please make sure that there are clear and continuous sidewalks and where pedestrians are frequent, make sure that the intersections are safe to get across. There is little to make it feel comfortable for walking across Hover currently.

Improvements for West Side of Hover

- The area on the west side of Hover is not very walker friendly.
- A proper protected bike lane between 9th and Home Depot on the West side of Hover.
- The worst walk I've had recently was attempting to get from the Home Depot on Hover up to the St. Vrain Greenway path in Rogers Park. The walk along the west side of Hover south of Nelson requires the brave pedestrian to navigate a narrow patch of soil while high-speed traffic zooms by just a couple of feet away. One misstep here could easily lead to a fatality. Possible solution includes installing a real sidewalk on the west side of Hover and providing more crosswalks for pedestrians (as Boulder does on Pearl street by Whole Foods).

Sunset Street

- Sunset Street south of Ken Pratt needs better pedestrian and bicycle access to service the schools in the area. A wider multi-use path on one side of the street (with an easy way to crossover) would serve that purpose.

Other Roadways

- Walking up 95th/Hover north of 119 dangerous as cars turn in.
- More "press button to activate marked crosswalk" areas along KP Blvd and Hover.

Outside Study Area

- Where Sunset dead ends on Plateau, a larger, more visible Stop Sign is needed. Now, the sign's visibility is poor due to tree branches obscuring its view. (I realize this is slightly out of the boundary you're discussing, but this situation needs to be fixed.)
- Although this may be a bit out of the study area, would the City please cut tree branches on South Sunset, the block before it dead ends into Plateau Rd? It's hard to see the stop sign until you're right up on it. We live right across the street from where Sunset dead ends and, unfortunately, we've had more than one car cross Plateau (without stopping) and end up in our driveway. Thanks. (Maybe a larger stop sign would also be a good idea.) *(email comment)*
- Widen the sidewalk on the west side of Dry Creek Drive between bike path and Bent Way.
- Put in a ped/bike crossing at Bent Way and Dry Creek drive to give access to the King Soopers shopping center.
- Make sure Clover Basin & Fordham intersection lights have left turn arrows for everyone.
- There needs to be a crosswalk at Sherman and Ken Pratt.
- Not sure about how to make travel easier for pedestrians in this area....but I have many comments about the mid-block crosswalks on Main Street!!

- Crosswalk signs with flashing lights that can be activated by pedestrians as needed, especially at Hover and Pike Rd. Intersection.
- How many kids have to get hit (2 down so far!) or killed before Airport and Clover Basin is fixed?
- Better/safer crossing of 95th in the Oscar Blues/FRCC area south of Diagonal. Preferably another pedestrian underpass.
- Build out a nice sidewalk/crossing point on the northeast side of the Clover Basin and Airport Rd intersection.
- Airport Road/Pike pedestrian crossing (outside study area). *(team notepad)*
- Access to King Soopers via bikes/walking is difficult (west of Hover). *(team notepad)*
- A stop light and cross walk at Fordham and Clover Basin. Currently there is no way to safely cross this four lane road as there is no cross walk or light between Hover and Airport. Traffic coming east on Clover Basin come around the corner from Airport so fast if you are in the middle of Clover Basin trying to cross it's extremely dangerous.

Not Location Specific

At-Grade Crossings and Signals

- *RRFB Crossings*. *(x6)*
- Safer bike/ped crossings. *(x3)*
- More frequent crossings. *(x3)*
- Longer walk signal. *(x3)*
- Better light timing to improve pedestrian crossings.
- Pedestrians cross walk painted on road, especially at Dry Creek and Nelson.
- More space for pedestrian crossings.
- Pedestrian and bike only crossing lights that stop all traffic in all directions for pedestrian crossing. There could be a crossing button that has an option for pedestrian (long timing) or bike (shorter timing). Technology should allow for that.
- Anywhere you have bike and pedestrian usage you should look at Leading Pedestrian Interval signals and prohibiting permissive left turns. Drivers spend too much time looking at vehicular traffic and not enough time looking for bikes and peds.
- An all red light pause when someone pushes the button to cross....like the one at Main St and Longs Peak.
- One moment early to cross at walks before the traffic lights change (Sunset and Pike works much better now).

Intersection Improvements

- Islands at major intersections with traffic lights. *(x3)*

- Median refuges. *(x2)*
- Bulbouts to increase visibility of pedestrians to vehicles and vice-versa. *(x2)*
- Walk signal buttons separate from the light pole so they are easily accessible.
- In general, it would be good too look at how things like traffic light poles are often taking up the sidewalk/path area, which makes the space difficult in many corners.
- Neck downs.
- Better lighting at intersections for nighttime pedestrian crossing.

Signage and Striping

- More informative and directional signage. *(x4)*
- Even marking for better pedestrian access would be great.
- Something to alert drivers that pedestrians might be present as foot traffic increases. Is this the blinking lights I've seen in other crosswalks? A colored road pattern? New signs lining the road? I'm not an engineer so I don't have the answer.
- Wayfinding signs along Hover Road and the surrounding area are needed to access LOBO Trail and other various ped/bike trails (such as Dry Creek Trail). *(map comment)*

Speed

- Reduction in speed limits. *(x12)*
- Stronger enforcement. *(x2)*
- Adding the automated ""Slow down"" radar signs is a proven and very cheap way to enforce speed limits with minimal controversy. And reduce noise and pollution throughout the city as well.
- LESS space for cars, and more bike/pedestrian space.

Facilities

- Separated multiuse path. *(x22)*
- A sidewalk. *(x2)*

Grade Separated Crossings

- Underpasses or overpasses for pedestrians/bicyclists. *(x17)*
- You've built a great tunnel under Diagonal near Oskar Blues, but it dumps out into no bike/ped path or safe crossing.
- I do really appreciate the two new tunnels under Hover, but they also exemplify the problem - that the only way to accommodate peds and bikes is to spend millions of dollars and make sure we never inconvenience cars in the slightest. This money is then considered to have been spent on bikes and peds when in fact it was spent on cars.

General

- Limited bike options and pedestrian crossing options.
- These are some of the worst traffic intersections in the city - they are not efficient or safe for pedestrians or bikers.
- City and this area have major conflicts between bikes and peds and cars. *(team notepad)*
- More bikers = happier citizens.
- I don't see a ton of bicyclists or pedestrians. In Boulder a few years back they added extra bike lanes at the expense of expanding the road, and I think it was a bad idea.
- Sounds like Longmont already has plans for giving bike/ped access to South Main by extending Coffman south and creating bike access as well as bus routing. Yay!
- Making it much more convenient to walk than to drive. Honestly this area is a nightmare because it was designed for cars and nothing else. The trail coming in from the southwest that goes under Hover is a GREAT addition (for cyclists as well), but the triangle area is not safely connected to "Longmont Proper" via trail or safe bike lanes, and thus makes people much more likely to drive to it (or avoid it all together).
- It would be easier if pedestrians were sober- or on paths crossing under the roadways.
- Pedestrian travel is pretty decent in this area.
- Traffic light.
- I would be curious to see a study/survey that states exactly how many people are walking/biking in these areas, say on a weekly basis. Is the city proposing improvements to satisfy bike riders? pedestrians? bus riders? I can imagine that any improvements will cost millions of dollars and I know there are serious needs in other parts of Longmont. I wish the intention of this survey was more transparent.
- Too many cars going too fast with too many lanes for pedestrians or bicycles.
- Area not particularly friendly for pedestrian and bicycle traffic.
- More pedestrian and bicycling right of ways.
- Roads seem extremely wide and high-speed (more like inter-city highways than local access roads) which makes them dangerous to travel along, especially for pedestrians and cyclists. I'd like to see them narrowed.
- North south bike access in general. The Greenway is awesome, I just wish there were ways to travel north south on bikes that avoided roads as well. Or at the very least had better bike lines. None of the north south roads in this area have good bike lanes all the way through.

What improvements are needed for bicyclist comfort and safety?

Hover Street & Nelson Road Intersection

- Cycling is dangerous in many parts of this area. Nelson/Hover is a high crash area for pedestrians and cyclists. I would like to see more grade separations (tunnels) for people to cross Nelson and Hover here and link to the bike path. The South side of Nelson starts with a bike path at Hover, but disappears east of the shopping area, returning near Sunset. Concrete plates are also broken.
- Bike lanes at the intersection of Nelson Road/Hover Street are missing. Many felt the intersection was dangerous to cross while on a bicycle. Pedestrian safety and visibility was an issue for the intersection as a whole. *(map comment)*

Ken Pratt Boulevard & Hover Street Intersection

- Poor and unsafe pedestrian crossings near the Hover/Diagonal intersection.
- Ken Pratt Boulevard/Hover Street - Possible designated cyclist lights to enable cyclist to get ahead of traffic. Possibly stopping southbound cars from entering HWY 119 when this light is activated.
- There is no good way for a bicyclist to travel westbound on 119 through the Hover and 119 intersection, without being in a vehicle travel lane. The island on the northwest side of the intersection has a hard drop off at the southern edge--where you would also need to cross any traffic turning right onto 119 from southbound Hover. Adding a bike lane or shoulder to the right of this merge lane would help, as would sloping the sidewalk at that part of the island.
- I think bicyclist comfort and safety was addressed with the underpass on 119 and Hover.
- The 119/Hover intersection is extremely hazardous for pedestrians. If possible, underground walkways from the west and south sides of the intersection into the middle area between these streets would provide safer access to the extended shopping and dining areas in the entire Mall at Twin Peaks area. Crossing at Hover between east and west is already taken care of by the new pedestrian tunnel. I can't see any other way the lights or crosswalks could be changed at that intersection to improve pedestrian safety.
- Ideally there would be another underpass under Hover at Diagonal to allow bikes/peds to safely head into town or to the mall area. If underpass it too costly, then please create a safe bike crossing across Hover.

Ken Pratt Boulevard & Sunset Street Intersection

- Better crossings for bikes when there are train tracks (Sunset and Ken Pratt)
- I preferred riding with traffic on northbound Sunset crossing Ken Pratt instead of the crappy crosswalk that doesn't really give you a place to go after you are on the north side of Ken Pratt. Once past the Diamond Shamrock I felt a little safer.
- Leading Bike Ped Interval - so peds and cyclists can clear intersections Sunset/Ken Pratt safely – great – Fort Collins! Reduce speed limit! (*open house comment form*)

Other Study Area Intersections

- No safe way to bike in this area because the Intersections are too dangerous.
- The intersection at Ken Pratt & Sunset can be dicey for cyclists due to people racing the light trying to get through and turn.
- Ken Pratt/Sunset intersection: I wouldn't bike through that intersection. It's crazy.
- A better way to cross EVERYWHERE.
- The Pike/Hover and Hover/Diagonal intersections are very dangerous on foot or bike.
- Bike safety can be improved at the roundabout at the intersection east of Hover Street/Village at the Peaks shopping center entrance. Can we add sharrows to the roundabout? *(map comment)*

Hover Street

- Bike lanes. *(x3)*
- Safer crossings on Hover. *(x2)*
- Separated bike lane or multiuse path. *(x2)*
- New bike underpass leads people to very unsafe conditions. Need to find a better way to get people across Hover. *(team notepad)*
- The wide sidewalks suggest I should ride my bike there instead of with all the crazy clown driven cars on the road. However, the winding and curvy sidewalk is not ideal for cycling as transportation (perhaps it is fun for a Sunday stroll). But worst of all is the numerous places where driveways with merge lanes cross the sidewalk as cars very often blow through these without seeing cyclists. It's been several years since I commuted daily between Boulder and Longmont on bike but when I did the complete lack of bike friendly way to cross Hover on 119 was scary. I think that may be fixed now. But the transition from shoulder riding northeast bound on 119 to sidewalk riding just after Hover was super sketchy.
- The paths that parallel Hover on both sides are not adequate for bikes.
- Lack of safe bicycling pathways along and crossing these busy streets, specifically from west of S. Hover and into the businesses highlighted within the study area.
- When I have biked on rare occasions here, I'm often coming up the Diagonal and cross Hover. The lack of a bike lane or shoulder east of Hover makes biking difficult, but also getting onto the sidewalk immediately east of 119 and Hover (on the south side of Hover going east on 119) is difficult because of the island for pedestrians waiting to cross the intersection. Getting onto the sidewalk there requires a sharp right turn.
- A paved side walk on the west side of hover from pike to the LOBO trail. Add a crosswalk to the south side of the hover/pike intersection.
- Full sidewalks on the West side of Hover going North.

- Once a cyclist gets to Longmont from the SW, there should be more options to get around. How can I safely get to the farmer's market by bike, for instance? Is there sufficient room on Hover to create a protected bike facility? That road is too fast and too busy for even a standard bike lane to be a benefit. But to get around town, one needs to be able to access better biking streets more readily. I really wish there was a good way to get off the LoBo Trail and comfortably head north not far from Hover.
- I personally bike a lot through Longmont, normally commuting to work at the IBM plant. However, I don't bike in bad or cold weather--so its normally between April and October. I generally avoid Hover for biking due to traffic volume and lack of bike lanes and sidewalks for much of the route. (Some parts have sidewalks, but if there are many intersections with roads, I'd rather ride on the street in that case--which I don't want to do on a street like Hover)
- There are a ton of cyclists in Longmont who want to bike to work but can't do so safely. Many work in Longmont or live in Longmont or along the Diagonal Highway towards Boulder. All bike traffic is funneled to Hover/Ken Pratt but it is currently very dangerous to ride here. Please improve curb cuts and signage along Hover and improve connectivity. *(open house comment form)*

Nelson Road

- Bike lanes on Nelson Road.
- The most important thing for cyclists is maintain Nelson and Airport. Heavily used by serious/commuter cyclists. Need more sweeping – now only happens once a month or so and isn't enough. *(team notepad)*
- Need bike paths all along Nelson Rd at least from Airport Rd east to the Fairgrounds so people/families can bike to the farmers market and Rogers Grove without having to go all the way up to Lykins Gulch.
- Repurpose 2nd lane on Nelson for protected bi-directional bike lane.
- Consistent bike path on south side of Nelson.
- I would like to provide a comment on my experience cycling in the area. I needed to get to my office which is in the area from the northeast. I looked up the official city routes and saw that Nelson Road is a cycling route. As I was travelling westbound on Nelson, I was shocked to discover that the bike lane ended abruptly and I was sharing a lane with many aggressive vehicles around Hover street. I will not cycle in that area until there is a change.

Ken Pratt Boulevard

- Lots of cyclists use Sunset. Kids on bikes trying to access schools have to go out of direction now to stay safe while crossing Ken Pratt. *(team notepad)*
- It isn't as bad entering the city on 119, but it still isn't safe. A designated lane, possibly protected from traffic, would be ideal.
- For bikes continuing on eastbound 119, sloping the sidewalk so bikes could enter slightly to the east of the current position would help.
- A separate bikeway next to Ken Pratt that is protected from traffic (raised bikeway?)

- There should be a bike lane on Ken Pratt or a nearby bike path that is easily accessible.
- A wide shoulder or bike path parallel to Ken Pratt. Separate from car traffic by physical barrier.

Sunset Street

- Bike lane along Sunset or wider sidewalks. *(x2)*
- Add bike lanes to Sunset Street. *(map comment)*
- I almost never bike on any of the roads in the study area, except for Sunset, as there is too much traffic and no adequate bike lanes.
- When I bike to work, I take Sunset to Pike or Plateau to 95th. Even the intersection at Hover and Pike is treacherous for cyclists at rush hour times. I almost never visit Village at the Peaks or any of the retail west of Hover because I have to get in a car and drive the 2 - 3 miles as I don't feel safe biking there.
- Continue the bike lane down south Sunset, develop a safe way for bikes to get to the mall.

Other Roadways

- Nelson, Hover, and Ken Pratt are nightmares for cyclists. I feel like I'm taking my life in my hands riding even on the sidewalks along those streets, and there are not many alternative side streets in this area. Cars are not looking for bikes, the twists in the sidewalk on the south side of Nelson west of Hover are 100% for cars. I bike to Boulder and Erie for work from the middle of Longmont, and one of the most treacherous parts of my commute is the section between Old Town Longmont and the SW part of town to get to 95th or LoBo.
- Sunset 119 to Pike- close a car lane, separate bike lane from traffic

Outside Study Area

- Hover and Pike intersection should be improved for cyclists to get to LoBo trail. *(team notepad)*
- Road diet/bike lane south of 119 to allow cyclists to safely cross tracks. (*open house comment form*)
- Biking to King Soopers at Dry Creek Drive and Bent Way from the bike path west and dealing with traffic that does not see me.
- Biking to South Main (Cheese Importers, etc.) and having to cut over rail road tracks or use roads with no shoulders or narrow sidewalks.
- Please complete the LoBo trail up to Oskar Blues.
- Limited N-S bicycle corridor, would prefer to be able to go from Southmoor to downtown/Sunset pool/etc. safely on a bike.
- Widen clover Basin and put in bicycle lanes on all major thoroughfares. Again, the motorists running red turn lights is a severe danger.
- New developments west of Target at Fordham must include bike thoroughfare. *(team notepad)*

- Need more direct pedestrian connection from Ken Pratt to Front Range (across railroad between Sunset and Hover). *(team notepad)*
- I am unable to get from my home at 17th and Hover to the south Longmont shopping and dinner places (Target, Home Depot, Buffalo Wild Wings, etc.) without having to ride in the edge of the scary road...a dirt path that crosses into people's property.
- A lot has been done which is great. The only stretch that comes to mind is Clover Basin from the entrance to the SVVSD building to S Fordham St. The sidewalk narrows and the shade from the building causes ice and snow to last longer on the south side of Clover Basin.
- Larger shoulders, bike path connection from existing path on Dry Creek.
- No good, continuous path for biking from western side of town to downtown.
- How many kids have to get hit (2 down so far!) or killed before Airport and Clover Basin is fixed?
- Too narrow at Clover Basin just east of Airport.
- Can't bike through the northeast side of the Clover Basin and Airport Rd intersection easily, especially when needing to also turn west to cross Airport Rd. There is no safe place to sit while waiting for the light to change because the cut outs are perpendicular to the direction of travel.

Not Location Specific

At-Grade Crossings and Signals

- More bike friendly signaling and lanes.
- Unsurpassed or better crossings such as hawk lights.
- Mid lane islands for protection.

Intersection Improvements

- With no bike lanes in certain areas I am forced on the sidewalk, ironically crosswalks are one of the most dangerous places for a cyclist as the motorist is looking left, in a hurry always, for oncoming traffic and usually don't notice the green walk signal that I have.
- What if paths could be tabletops where they cross driveways and smaller roads? It is overall a high stress area for cyclists, and is generally avoided.

Signage and Striping

- Provided bicyclists are following traffic laws, more signs that ask vehicles to yield to bikes as they would to pedestrians would help with bike safety.
- Color bike lanes green.
- I have been yelled and cussed at repeatedly in this town as a cyclist and I believe it is due to lack of education and signage.

Facilities (Bike Lane)

- Bike lanes. *(x10)*

- Wider lanes with a buffer lane.
- Too late now, I suppose, but the mall needs to have an obvious bike lane/path through it. Sharing sidewalks with peds does not always work around restaurants and shopping. And parking lots and their access streets are notorious for fender benders and with a bike in the mix, we are talking potential major injury.
- Bikes only green lights maybe?
- Are there bike lanes??? That's all a bike needs. No rebuilding of intersections.

Facilities (Separated Facility)

- Protected lanes. *(x20)*
- Road diets. *(x5)*
- Add better striping and curb protection for non-motor-users.
- Get people on bikes (off-street) and under/over streets. *(team notepad)*
  - Under Nelson at Cattail
  - Under Ken Pratt at Industrial/Village at the Peaks
  - Under Hover south of Ken Pratt (KP)
  - Under at Fordham and Nelson
  - Through development west of Fordham along Creek

General

- Do not feel safe to bike around Longmont. *(x6)*
- Too focused on car transportation. Need more commuter bicycle infrastructure. *(x4)*
- More bike parking. *(x2)*
- I'd love to see this community offer opportunities for families bicycling to businesses - from Brewing Market north up through the Village of the Peaks and farther even to the Flower Bin.
- Safe and peaceful bike and walking options. Let's make Longmont a bike town!
- Difficulties in accessing local businesses while commuting on bicycle.
- It would be great to have a bike path that moves bikes safely and efficiently into downtown Longmont from the SW side.
- Try riding or biking across the area during the morning or evening rush hour with a go pro to record the effort. Note the issues you run into.
- Bike tire pump locations.
- I look forward to new, better, safer biking options
- Enforce existing vehicle noise/muffler plus bumper height rules to remove illegal Harley/Monster Truck culture that has formed in Longmont.

- More bike access.
- Better facility for bicyclists when a bike path is closed. There should be a clear detour. I got stuck on the path between Dry Creek Drive and S. Fordham until I figured out how to walk my bike around the big gaping hole in the sidewalk.
- A north-south bike path through town on the west side. The alternative is ride in the street on side roads with some traffic and some people in parked cars opening their doors into you OR riding on ancient narrow sidewalks that don't allow two people to pass each other.
- Better maintenance for bike lanes.

Where is the greatest need for improvements within the study area? Which location should be improved first?

Hover Street & Nelson Road Intersection

- Because of high rates of crashes - Nelson and Hover should be addressed first. *(x5)*

Nelson Road & Ken Pratt Boulevard Intersection

- No comments.

Ken Pratt Boulevard & Hover Street Intersection

- Ken Pratt/Hover - the light angles are at such an angle that the cross traffic sometimes think the light is theirs. We were almost creamed years ago at night coming from Boulder and someone thought it was her light. The angle of that intersection is a killer. the low curb between the traffic and the bike lane, broader sidewalks and clear pedestrian signaling. Put an island between right hand turners and peds waiting to cross. The intersection at Hover/Ken Pratt. There's not enough room for the left turn people going south, turning east onto Ken Pratt. *(x13)*
- Put good multi use path on 95th Hover from 119 to Roger's grove/ Fair grounds

Ken Pratt Boulevard & Sunset Street Intersection

- Sunset & Ken Pratt *(x4)*

Other Study Area Intersections

Clover Basin Drive & Hover Street

- Light duration at Clover Basin and a Hover and I'm guessing Hover and Nelson will get the most votes for improvement. *(x4)*

Intersections Outside of Study Area

Pike & Hover/95th Intersection

- I vote for the intersection of Pike Rd and Airport.
- Hover and Pike intersection near the train track
- Pike and Hover: the low curb between the traffic and the bike lane, broader sidewalks and clear pedestrian signaling. Put an island between right hand turners and peds waiting to cross.

Ken Pratt & Sherman Street Intersection

- A light at Sherman street and Ken Pratt *(x3)*
- Ken Pratt Blvd and Sherman Street....Please! The listed intersections already have stop lights. Additionally, there's a hotel going in.
- Ken Pratt & Sunset need the dedicated turn lane.

Others

- Intersection and turn lanes at Nelson and Fordham
- Intersection and turn lanes at Clover Basin and Fordham
- The intersection of South Hover and Plateau. Perhaps a left-turn lane? Cars screech to a halt when they realize someone is turning. This situation will only get worse with more people living at Balfour.
- Dry Creek and Clover Basin is very dangerous during working hours. Clover Basin is so busy. Can't turn out of north or south of Dry Creek.
- You're studying the wrong area. Fix Airport/Pike, Airport/Clover Basin, and Airport/Nelson first.

Hover Street

- Biking options along Hover - either painted bike lane with signage or separated path/trail with underpasses/overpasses for bikes/peds. Hover would be my main focus.
- Hover Street. *(x3)*
- Hover from 3rd north: no bike paths, lanes or other routes exist.
- Traffic issues on Hover - possibly add a lane?
- Better pedestrian and bike access along major Hover businesses, especially going east. *(x2)*
- Hover is a great north south corridor that is currently not at all safe to bike. It makes it hard to get from downtown/up north to the mall and surrounding businesses.
- Hover between Clover Basin and Pike (including the huge Diagonal intersection)
- I am biased to the intersections along S Hover since I travel there most often but I can imagine the intersection of Ken Pratt and Nelson gets quite busy during commuting times.
- Sync up stop lights on Hover better.

Nelson Road

- Nelson Road and bike paths along that road.

Ken Pratt Boulevard

- Ken Pratt from Nelson to S Pratt Parkway should be widened. I know this is outside the study area.

Sunset Street

- Sunset between Ken Pratt and Nelson and continuing on down Sunset to connect with the Left Hand Creek path. *(x2)*
- Given the high traffic volumes and speeds on Hover, this street will be more difficult to improve. Greater "bang for the buck" could be achieved through the simple restriping of Sunset.

Roadways Outside of Study Area

- Use roundabouts along Clover Basin Dr.

General Bicyclist/Pedestrian Issues

- Since bicycle infrastructure is basically non-existent in the area, the need is basically equal in its entirety. If I had to pick, I might say near Price Road because that connects into the Greenway, but from there, cyclists are putting themselves into Longmont's Bermuda Triangle of high-speed car traffic.
- Slow traffic down, make it more friendly for walkers and cyclists. Connect SW Longmont to Downtown Longmont--or Left Hand Brewery!!!
- Creating a northern route for bikes along the west side of the study area
- Village at the Peaks is basically an island for peds/bikes and right now there is one convenient way to get there for bikes/peds - the tunnel under Hover. There is no equivalent way on/off that crosses Nelson or 119. Would love to see that fixed.
- The intersection of 119 and Ken Pratt is particularly hazardous to both pedestrians and cyclists. Underpasses (like the one installed recently that traverses east-west) would be helpful in connecting areas south to the Village at the Peaks shopping complex and other venues on Hover. *(x2)*
- Also develop a special bikeway allowing protected east/west travel between Main Street and Village at the Peaks Mall.
- Safe ways of sharing the road.
- Traffic enforcement
- Solar
- Need a low speed north-south and east-west trail or road with underpasses to bypass the major high speed roads.

- There are just too many cars. Create options to get people out of their cars. Create an old time Longmont trolley between Main Street and Village at the Peaks Mall. People could park at Main and 1st Street and ride the cool trolley!

General Suggestions and Comments

- I would love more feedback, via town hall meetings and operation study open houses (like this one) about this traffic management improvement study. Preferably, the current routes do not drastically change, unless they increase the frequency of them. *(open house comment form)*
- US 36 and McCaslin DOI is a disaster. Not a good idea. Asking for accidents when traffic goes on "wrong side". Longmont isn't ready for this. *(team notepad)*
- Left turns have yellow arrow when walk permitted. *(team notepad)*
- NE corner of Nelson/Airport needs to be swept, as it is always dirty). This maintenance wouldn't be as costly as other improvements and would be extremely beneficial. *(x3) (team notepad)*
- Short-term solution for SWRT and plug in sooner. *(team notepad)*
- Nelson Road. ROW property owner at lot. *(team notepad)*
- Need for more law enforcement noting bad-driving habits. Can "volunteers" be utilized to pull over offending motorists, read them the traffic law and ask if they understand what they have been observed doing, and do they understand how to proceed going forward?
- Please fix it!
- I appreciate how much work the city has done so far to improve transportation and I am excited to have the improvements that are already approved put into place and more improvements approved in future.
- Thank you for soliciting feedback from residents! It makes me really appreciate being a member of this community when I feel like I have a direct voice and I can see that my input has an impact. I'd like to hear follow-up after this data collection has concluded and once plans have been made, so that residents can again have the chance to give feedback on proposed plans and changes.
- Thanks for collecting citizen input! Please consider existing studies that show road widening increases costs without improving car traffic. The only solution to car traffic is to reduce the incentive to drive. *(x2)*
- Thank you for asking. *(x5)* I'm delighted to see that city being proactive in seeking community input. I look forward to hearing more of this at the Transportation Advisory Board meetings.
- Thanks for your work on making improvements to the roads here in Southwest Longmont. I live on 9th and Sunset, work at Nelson and Sunset and my son goes to Flagstaff Academy south of that so we are in this section of Longmont constantly. I honestly am pretty happy with the roads. *(email comment)*
- Solar is good.

- I hope that a solution does not include increasing capacity for car traffic. This will only induce demand for more people to drive cars and will be extremely expensive both short and long term for the city. I hope that the people conducting the study look at solutions through the lens of "will it be safe for an 8 year-old to ride a bike in this area?
- You had a chance to improve at least one of the intersections when the mall was being torn down--I even spoke to someone at the traffic department who agreed with my suggestion--but nothing came of it, and it's too late now.
- Bring some Victorian charm to the city. Longmont needs to feel special. Use Village at the Peaks as it was intended- by making a more fun gathering place - I love the trolley idea- or some big underpass that makes driving and walking safer. Make more charming additions.
- Longmont's population is booming, this area might be the problem now but the issues are going to just continue to grow as people can't afford to live in the surrounding cities.
- I am very thankful for the opportunity to give my opinions and experiences online since I cannot attend the public meeting.
- If the intersection of S. Sunset & Lefthand Dr. Is not considered in this study, can you please let me know when it may be considered? Thank you.
- Longmont wastes a lot of money doing studies that never turn into action. Don't perform studies unless you have funding in place to make at least some improvements.
- Yes. What concerns prompted this survey? Who is leading the charge on spending city tax dollars on this project?
- Get more creative...
- I personally don't feel like there are any issues at these intersections. I've lived in Longmont since 2000 and I've never experienced frustration when traveling in these areas. I really like how I can cut across on Nelson to get to Hover when heading west on Ken Pratt. Is there some big new development coming to town that the city wants to prepare for that the citizens don't know about yet?
- I am very glad I visited this public meeting, and I am happier still to see that you are looking at short-term mitigations that do not eat up a lot of space! I personally believe that Peak Traffic will come sooner that seems possible now, and that multimodal transportation in a beautiful, welcoming, community-oriented Longmont will be something that all of us will see. *(email comment)*

How did you hear about the public meeting?

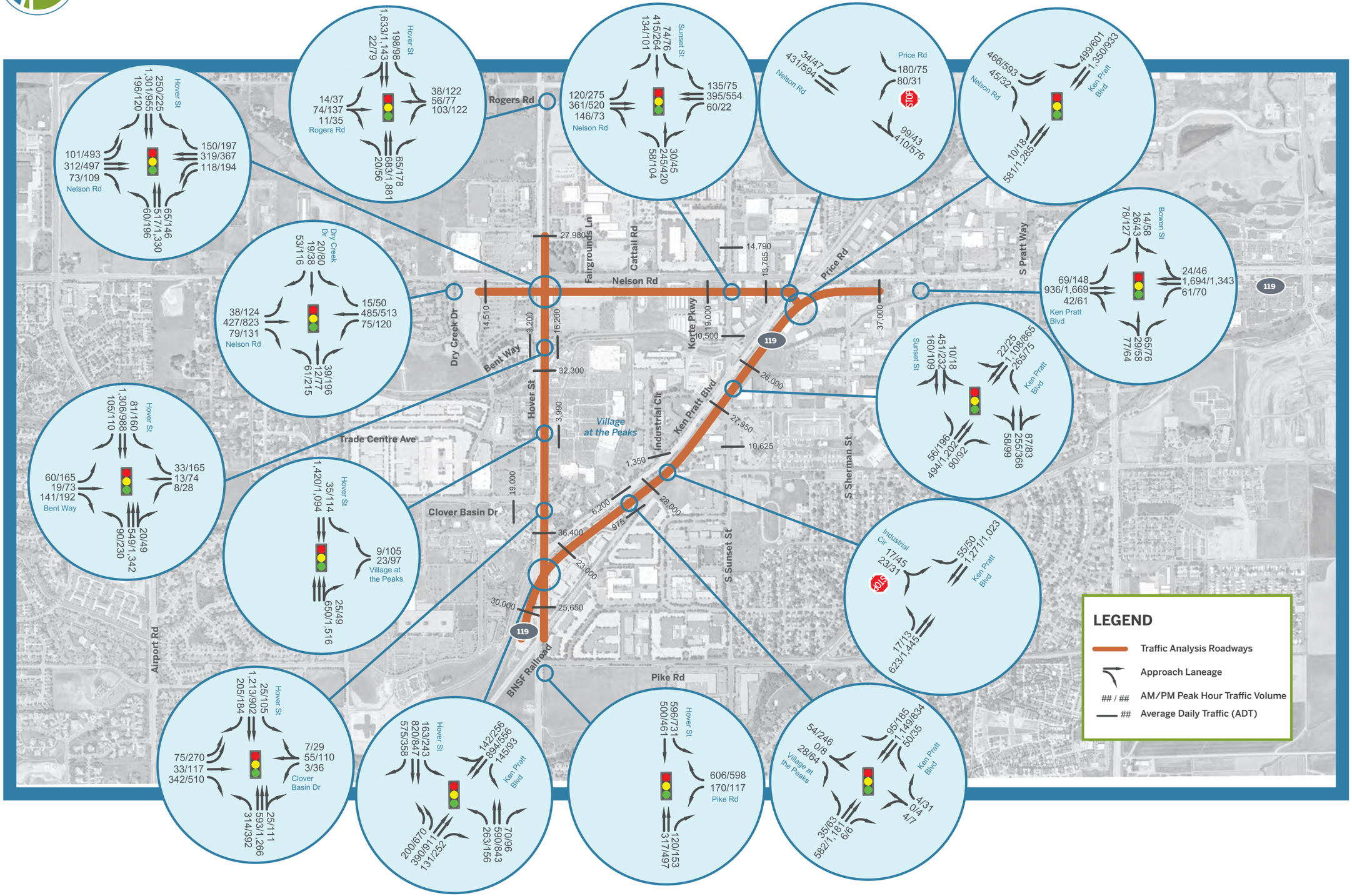
Longmont City Line newsletter:	6
Facebook:	1
Word of mouth/forwarded email:	3
Variable message sign along road:	3

Appendix B

Figures from Existing Conditions & 2040 Baseline Analysis Report

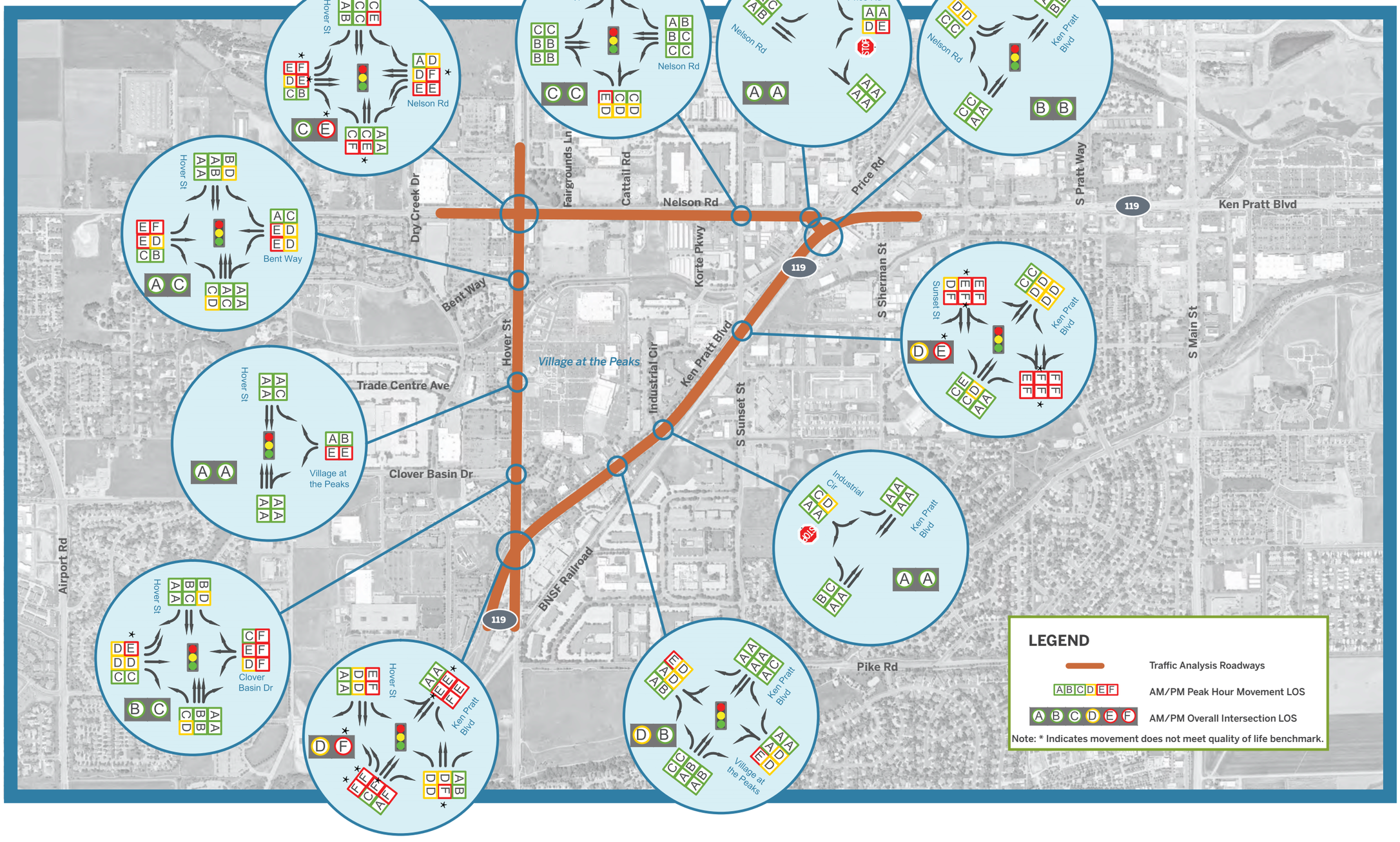
Southwest Longmont
OPERATIONS STUDY

Existing Traffic Volumes



Southwest Longmont
OPERATIONS STUDY

Existing Intersection Level of Service



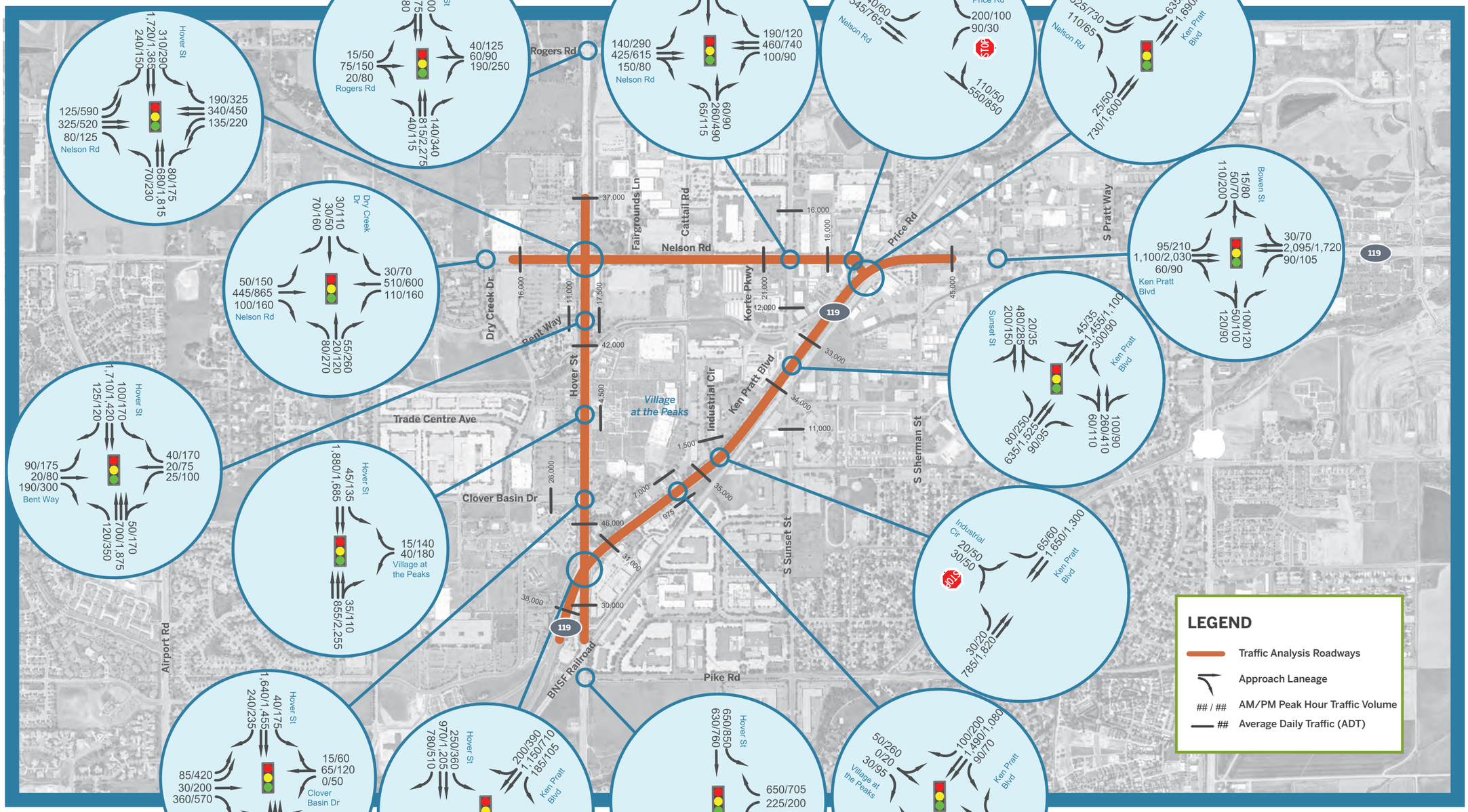
LEGEND

- Traffic Analysis Roadways
- A B C D E F — AM/PM Peak Hour Movement LOS
- A B C D E F — AM/PM Overall Intersection LOS

Note: * Indicates movement does not meet quality of life benchmark.

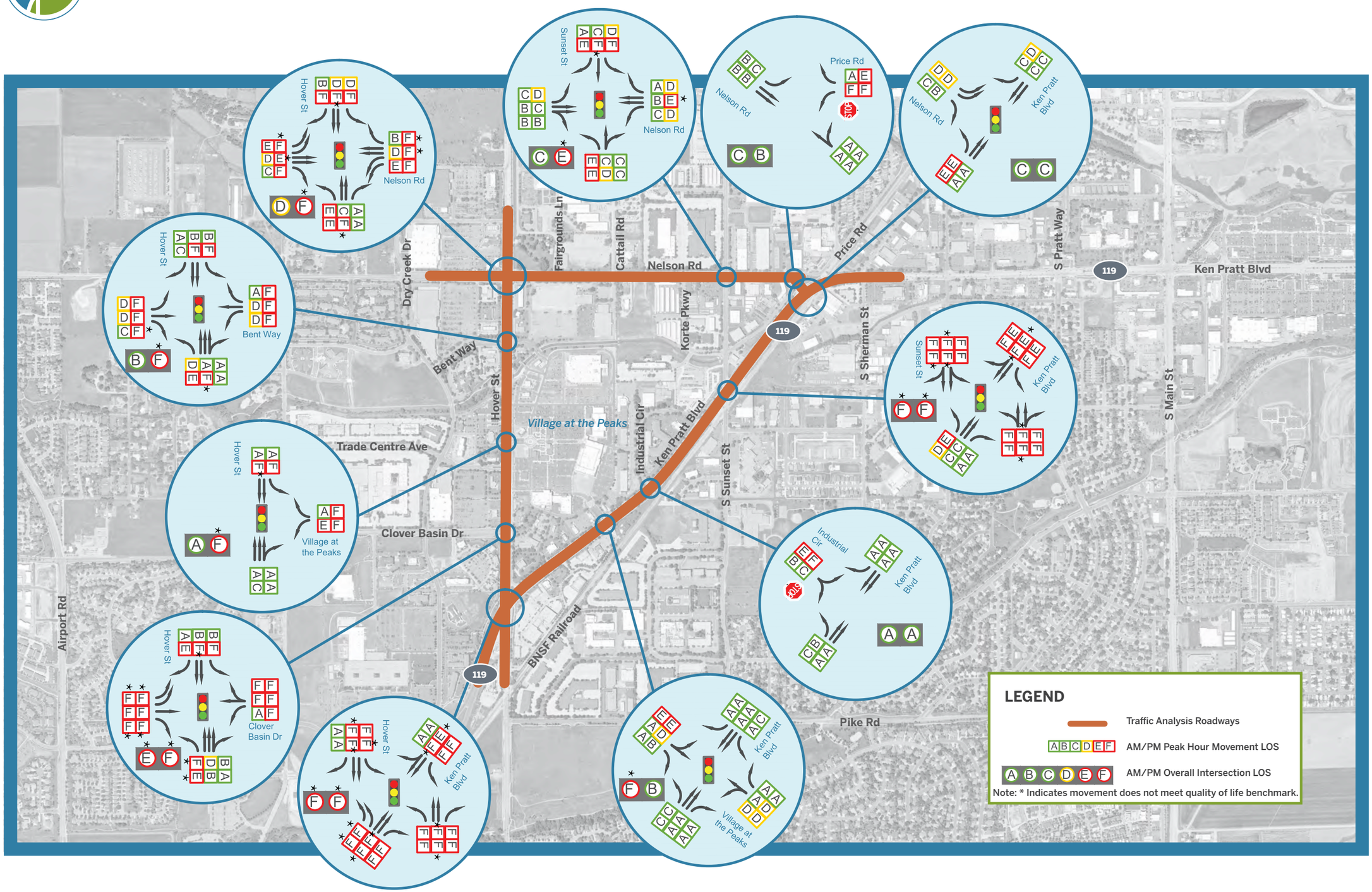
Southwest Longmont
OPERATIONS STUDY

2040 Traffic Volumes



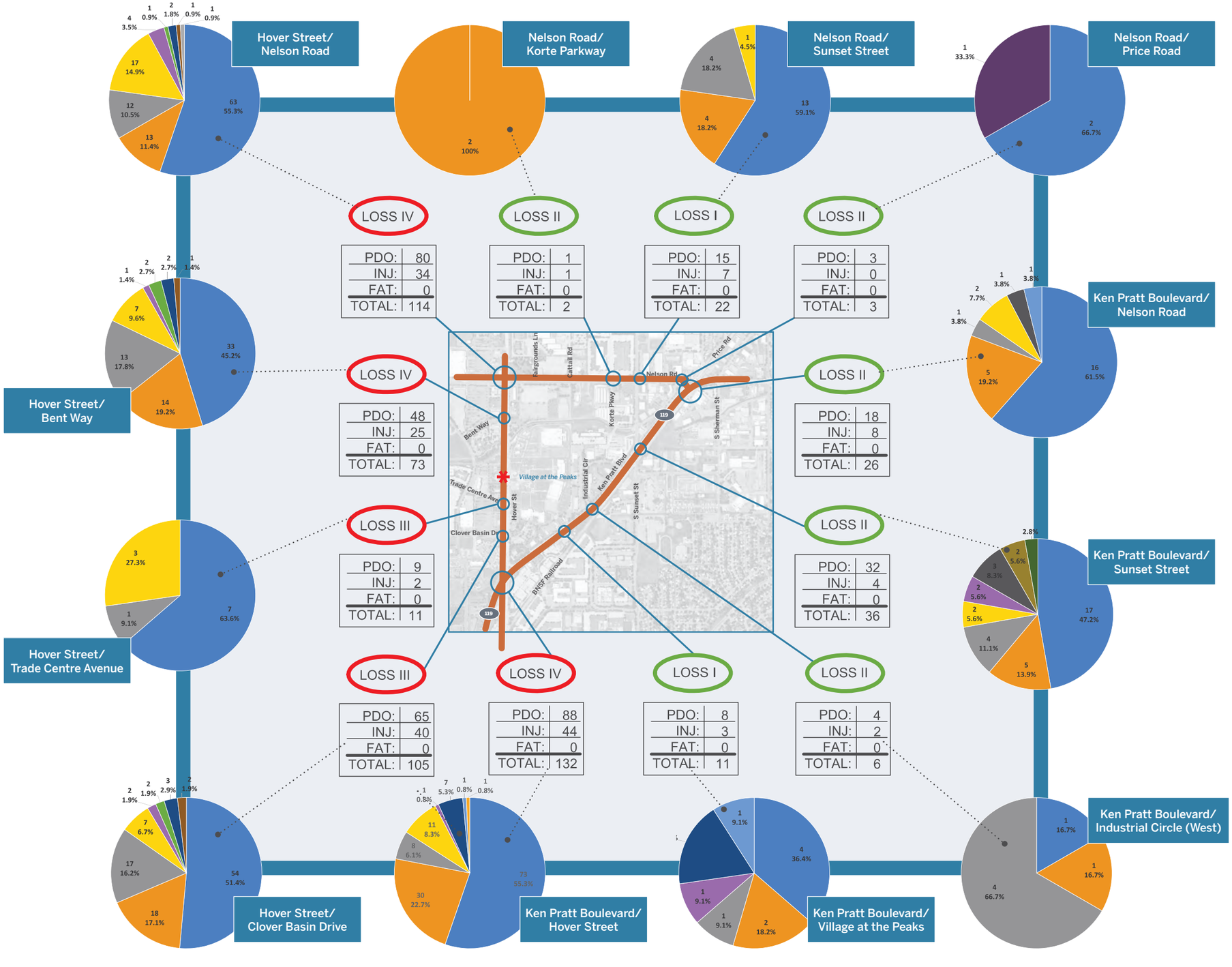
Southwest Longmont
OPERATIONS STUDY

2040 Intersection LOS



Southwest Longmont
OPERATIONS STUDY

5-Year Crash History



LEGEND

- Rear End
- Approach Turn
- Broadside
- Sideswipe (Same)
- Bicycle
- Pedestrian
- Fixed Object
- Overtaking Turn
- Curb
- Sign
- Large Boulder
- Overturning
- Other Non-Collision
- Other Object
- Sideswipe (Opposite)

* *Crash history at Village at the Peaks intersection unavailable due to its recent construction.*

Appendix C

Alternatives Screening Matrices

	DESCRIPTION	KEN PRATT BLVD & HOVER ST ALTERNATIVES								
		Existing 2017	No Action	1 Conventional Full-Build	1a WB Grade Separated	1b EB Grade Separated	2 Partial Displaced Left Turn (PDLT)	3 Median U-Turn	4 City of Longmont CFI	5 Grade Separated Interchange
SAFETY & OPERATIONS	AVERAGE NETWORK SPEED (MPH)	AM Peak Hour: 23 PM Peak Hour: 17	AM Peak Hour: 15 PM Peak Hour: 7	AM Peak Hour: 22 PM Peak Hour: 17	AM Peak Hour: 22 PM Peak Hour: 18	AM Peak Hour: 22 PM Peak Hour: 17	AM Peak Hour: 21 PM Peak Hour: 18	AM Peak Hour: 21 PM Peak Hour: 18	AM Peak Hour: 22 PM Peak Hour: 17	AM Peak Hour: 22 PM Peak Hour: 18
	TOTAL NETWORK DELAY (HR)	AM Peak Hour: 244.8 PM Peak Hour: 617.5	AM Peak Hour: 784.6 PM Peak Hour: 2,216.5	AM Peak Hour: 158.0 PM Peak Hour: 400.9	AM Peak Hour: 157.4 PM Peak Hour: 348.9	AM Peak Hour: 162.0 PM Peak Hour: 359.3	AM Peak Hour: 179.2 PM Peak Hour: 356.7	AM Peak Hour: 189.5 PM Peak Hour: 377.4	AM Peak Hour: 170.1 PM Peak Hour: 397.6	AM Peak Hour: 158.8 PM Peak Hour: 358.5
	AVERAGE THROUGH MOVEMENT INTERSECTION PEAK HOUR QUEUE LENGTHS (FT) (AM / PM)	Southbound: 220 / 307 Northbound: 159 / 361 Westbound: 309 / 221 Eastbound: 96 / 2,011	Southbound: 825 / 561 Northbound: 456 / 1,259 Westboundt: 748 / 301 Eastbound: 2,175 / 6,264	Southbound : 128/ 181 Northbound: 123 / 169 Westbound: 125 / 138 Eastbound: 83 / 1,967	Southbound: 137 / 207 Northbound: 123 / 188 Westbound: 0 / 0 Eastbound: 90 / 284	Southbound: 132 / 182 Northbound: 167 / 233 Westbound: 124 / 168 Eastbound: 0 / 0	Southbound: 232 / 235 Northbound: 331 / 150 Westbound: 241 / 84 Eastbound: 103 / 269	Southbound: 174 / 456 Northbound: 42 / 119 Westbound: 296 / 107 Eastbound: 131 / 422	Southbound: 390 / 400 Northbound: 110 / 258 Westbound: 230 / 207 Eastbound: 298 / 249	Southbound: 228 / 185 Northbound: 224 / 220 Westbound: 0 / 0 Eastbound: 0 / 0
	INTERSECTION PEAK HOUR LOS & DELAY (SEC/VEH) (AM / PM)	AM Peak Hour: 44.0 / D PM Peak Hour: 119.9 / F	AM Peak Hour: 164.8 / F PM Peak Hour: 332.4 / F	AM Peak Hour: 29.5 / C PM Peak Hour: 81.4 / F	AM Peak Hour: 26.1 / C PM Peak Hour: 35.4 / D	AM Peak Hour: 29.6 / C PM Peak Hour: 71.3 / E	West Intersection: AM Peak Hour: 6.6 / A PM Peak Hour: 19.4 / B Main Intersection: AM Peak Hour: 37.9 / D PM Peak Hour: 32.2 / C East Intersection: AM Peak Hour: 6.3 / A PM Peak Hour: 6.6 / A **Total Delay:** AM Peak Hour: 43.6 / D PM Peak Hour: 43.1 / D	West Intersection: AM Peak Hour: 11.0 / B PM Peak Hour: 17.8 / B Main Intersection: AM Peak Hour: 19.4 / B PM Peak Hour: 31.4 / C East Intersection: AM Peak Hour: 15.3 / B PM Peak Hour: 20.5 / B **Total Delay:** AM Peak Hour: 34.6 / C PM Peak Hour: 58.2 / E	West Intersection: AM Peak Hour: 14.3 / B PM Peak Hour: 32.2 / C Main Intersection: AM Peak Hour: 29.7 / C PM Peak Hour: 31.6 / C East Intersection: AM Peak Hour: 8.0 / A PM Peak Hour: 8.1 / A **Total Delay:** AM Peak Hour: 45.7 / D PM Peak Hour: 57.1 / E	West Intersection: AM Peak Hour: 9.2 / A PM Peak Hour: 13.6 / B Main Intersection: AM Peak Hour: 31.1/ C PM Peak Hour: 36.3 / D East Intersection: AM Peak Hour: 13.5 / B PM Peak Hour: 14.0 / B **Total Delay:** AM Peak Hour: 29.3 / C PM Peak Hour: 35.1 / C
	PREDICTED VEHICULAR SAFETY BENEFITS	No Change	No Change	Increasing capacity in each direction may reduce rear end type crashes. Additional left turn lanes in all directions in addition to protected left turn phasing may reduce approach turn and sideswipe type crashes. Addition of backplates and typical LED lenses may alleviate rear end type crashes as well.	Removing thru traffic from the signals may reduce approach turn and rear end type crashes for WB approach.	Removing thru traffic from the signals may reduce approach turn and rear end type crashes for EB approach.	Moving the left turns may reduce the number of approach turn crashes in the EB/WB directions.	Removing the left turn movement from the intersection should eliminate approach turn type crashes. Additional capacity along Ken Pratt may reduce rear end type crashes.	Removing the left turn movement from the intersection should eliminate approach turn type crashes.	Removing thru traffic from the signals may reduce approach turn and rear end type crashes for EB/WB.
	MULTIMODAL CONFLICT REDUCTION	No Change	No Change	Crossing distances are increased.	NB/SB pedestrians have slightly shorter crossing distances.	NB/SB pedestrians have slightly shorter crossing distances.	While crossing Ken Pratt it may become confusing having (for example) EBLT traffic to watch for, then WB thru traffic, and then EB thru traffic.	Large islands and medians may be used as a refuge.	Large islands and medians may be used as a refuge. West and south legs crossing have additional lanes to cross.	NB/SB pedestrians have shorter crossing distances.
	CRITICAL ISSUES	N/A	Does not address future capacity or multi-modal needs	Crossing distances are increased; Protected left turn phasing recommended.	May not fit in aesthetically with City of Longmont's vision	May not fit in aesthetically with City of Longmont's vision	Driver education to new configuration, confusing crossing with large crossing sections.	Complex and slow maneuver for large trucks.	Potential for SBLT vehicles to block themselves; left turners go around to head eastbound and block the intersection and don't allow eastbound traffic to move through during green.	May not fit in aesthetically with City of Longmont's vision
MULTI-MODAL ACCOMMODATIONS	PEDESTRIAN/BICYCLIST CONNECTIONS	Pedestrian underpass south of intersection	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
	PEDESTRIAN/BICYCLIST MOVEMENT COMFORT & SAFETY	Large intersection with heavy traffic. Islands provide refuge for pedestrians crossing.	No Change	Crossing distance increased which may make pedestrians feel less safe.	Shorter crossing distance on south leg.	Shorter crossing distance on south leg.	Crossing distance increased which may make pedestrians feel less safe.	Additional islands can be used as a refuge for pedestrians.	Large islands and medians may be used as a refuge. West and south legs crossing have additional lanes to cross.	Shorter crossing distance on north and south legs.
	TRANSIT CONNECTIONS	Bus stop to the west of the intersection	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
CAPITAL IMPACTS	ROW REQUIRED (ACRES)	None	None	0.03	0.03	0.03	0.34	0.33	0.29	0.68
	ROW REQUIRED (PROPERTIES)	None	None	Commercial: 1 Outfall / Multimodal Facility: 1	Commercial: 1 Outfall / Multimodal Facility: 1	Commercial: 1 Outfall / Multimodal Facility: 1	Commercial: 1	Commercial: 2	Commercial: 2 Outfall / Multimodal Facility: 1	Commercial: 7
	PROPERTY ACCESS IMPACTS	None	None	None	None	None	None	RIRO access to northeast property eliminated.	Multimodal Facility	None
	AESTHETIC TREATMENT OPPORTUNITIES	None	None	Additional islands and median.	Medians and bridge aesthetic finishes.	Medians and bridge aesthetic finishes.	Potential for landscaping in islands and medians	Additional islands	Additional islands and medians	Medians and bridge aesthetic finishes.
	CONSISTENCY WITH ESTABLISHED LOCAL AND REGIONAL PLANS			Yes - Per the Longmont Roadway Plan: triple EBLT, dual NBLT, Dual SBLT,and while the NBRT is not a thru/right, it instead accommodates a designated NBRT and an additional thru lane.	Yes - SB has 3 thru lanes accommodated through the intersection and dual SBLT. No - Triple EBLT, dual NBLT, converting third NB to shared thru/right.	Yes - SB has 3 thru lanes accommodated through the intersection and dual SBLT. No - Triple EBLT, dual NBLT, converting third NB to shared thru/right.	Yes - Dual SBLT and accommodates the plan for Hover to be 6 lane sfrom SH 119 north. No - Per the Longmont Roadway Plan: triple EBLT, dual NBLT, and conversion of the NBRT to a thru/right.	Yes - Dual NBLT No - Triple EBLT, dual SBLT, converting third NB to shared thru/right.	No - Per the Longmont Roadway Plan: triple EBLT, dual NBLT, Dual SBLT,and while the NBRT is not a thru/right, it instead accommodates a designated NBRT and an additional thru lane.	Yes - SB has 3 thru lanes accommodated through the intersection and dual SBLT. No - Triple EBLT, dual NBLT, converting third NB to shared thru/right.
FEASIBILITY AND COST	CONCEPTUAL-LEVEL PROBABLE CONSTRUCTION COSTS (LOW, MODERATE, HIGH)	None	None	Low	High - grade separation	High - grade separation	Moderate- medians and concrete islands.	Moderate - curb and gutter and concrete islands.	Moderate - curb and gutter and concrete islands and medians	High - grade separation and additional signals.
	CONSTRUCTABILITY	N/A	N/A	Basic	Difficult - bridge construction	Difficult - bridge construction	Moderate- new traffic patterns.	Difficult - new configuration and moving the left turns further form the intersection.	Moderate- new configuration moving left turns.	Difficult - bridge construction
	ABILITY TO CONSTRUCT IN PHASES	N/A	N/A		Yes	Yes	Yes	Yes	Yes	Yes
	USE OF EXISTING INFRASTRUCTURE	N/A	N/A	Existing sidewalks are maintained. Existing islands are taken out and rebuilt to accommodate the new geometry of the intersection.	None	None	Many of the sidewalks are maintained, however additions and rebuilds are also necessary. Existing islands may not be reused.	Many of the exisitng sidewalks may be maintained, however, due to the new footprint, some sidewalk will require rebuilding. All islands will require new build.	Some sidewalk rebuilds to accommodate new footprint. Islands and medians are all new.Additional signals.	None
DRAFT RECOMMENDATION								Not Recommended	Not Recommended	
NOTES										

DESCRIPTION		KEN PRATT BLVD & SUNSET ST ALTERNATIVES			
		Existing 2017	No Action	1 Conventional Intersection	2 Conventional w/ Shared NBTR & SBTR
SAFETY & OPERATIONS	AVERAGE NETWORK SPEED (MPH)	AM Peak Hour: 23 PM Peak Hour: 17	AM Peak Hour: 15 PM Peak Hour: 7	AM Peak Hour: 22 PM Peak Hour: 18	AM Peak Hour: 22 PM Peak Hour: 17
	TOTAL NETWORK DELAY (HR)	AM Peak Hour: 244.8 PM Peak Hour: 617.5	AM Peak Hour: 784.6 PM Peak Hour: 2,216.5	AM Peak Hour: 140.5 PM Peak Hour: 331.5	AM Peak Hour: 146.1 PM Peak Hour: 343.1
	AVERAGE THROUGH MOVEMENT PEAK HOUR QUEUE LENGTHS (FT) (AM / PM)	Westbound at: Ken Pratt: 342 / 253 Eastbound at: Ken Pratt: 129 / 370	Westbound at: Ken Pratt: 1,114 / 396 Eastbound at: Ken Pratt: 138 / 199	Westbound at: Ken Pratt: 469 / 251 Eastbound at: Ken Pratt: 167 / 557	Westbound at: Ken Pratt: 501 / 252 Eastbound at: Ken Pratt: 187 / 482
	INTERSECTION PEAK HOUR LOS & DELAY (SEC/VEH) (AM / PM)	AM Peak Hour: 48.3 / D PM Peak Hour: 59.4 / E	AM Peak Hour: 121.5 / F PM Peak Hour: 91.4 / F	AM Peak Hour: 41.0 / D PM Peak Hour: 49.7 / D	AM Peak Hour: 44.2 / D PM Peak Hour: 72.8 / E
	PREDICTED VEHICULAR SAFETY BENEFITS	No Change	No Change	Road diet creates traffic calming. Designated turn lanes may reduce number of rear end and approach turn crashes in conjunction with signal timing changes.	Road diet creates traffic calming. Designated turn lanes may reduce number of rear end and approach turn crashes in conjunction with signal timing changes.
	MULTIMODAL CONFLICT REDUCTION	No Change	No Change	Includes the addition of designated bike lanes reducing conflicts with vehicles. Signal timing changes to reflect a protected left in all directions would also eliminate potential conflicts for pedestrians.	Includes the addition of designated bike lanes reducing conflicts with vehicles. Shortened crossing distances. Signal timing changes to reflect protected lefts in all directions would also eliminate potential conflicts for pedestrians.
	CRITICAL ISSUES	N/A	Does not address future capacity or multi-modal needs	Right of way acquisition required. Coordination with the railroad for any changes to signal timing or activity in the RR ROW.	Larger right of way acquistion required. Coordination with the railroad.
MULTI-MODAL ACCOMMODATIONS	PEDESTRIAN/BICYCLIST CONNECTIONS	No sidepaths or bike lanes on Sunset to connect to existing sidepaths on Ken Pratt.	No Change	Bike lanes added on Sunset	Bike lanes added on Sunset
	PEDESTRIAN/BICYCLIST MOVEMENT COMFORT & SAFETY	No bike lanes, only 5' wide sidewalk on Sunset	No Change	Bike lanes added will increase safety for cyclists and sidewalk is widened for pedestrians	Bike lanes added will increase safety for cyclists and sidewalk is widened for pedestrians
	TRANSIT CONNECTIONS	Existing bus stops on NE and SW corners of intersection	No Change	No new transit connections	No new transit connections
CAPITAL IMPACTS	ROW REQUIRED (ACRES)	None	None	0.32	0.29
	ROW REQUIRED (PROPERTIES)	None	None	Railroad: 1 Commercial: 7	Railroad: 1 Commercial: 4
	PROPERTY ACCESS IMPACTS	None	None	None	None
	AESTHETIC TREATMENT OPPORTUNITIES	None	None	Medians and new sidewalk	Medians, greenspaces, and sidewalks
	CONSISTENCY WITH ESTABLISHED LOCAL AND REGIONAL PLANS	No - Longmont Roadway Plan has the intersection 3 lanes for the N/S approaches: Left, Thru, Thru/Right.	No - Longmont Roadway Plan has the intersection 3 lanes for the N/S approaches: Left, Thru, Thru/Right.	No - Longmont Roadway Plan has the intersection 3 lanes for the N/S approaches: Left, Thru, Thru/Right. According to the City of Longmont BRT Plan, the Sunset Street corridor is a preferred corridor for future BRT service.	No - Longmont Roadway Plan has the intersection 3 lanes for the N/S approaches: Left, Thru, Thru/Right. According to the City of Longmont BRT Plan, the Sunset Street corridor is a preferred corridor for future BRT service.
FEASIBILITY AND COST	CONCEPTUAL-LEVEL PROBABLE CONSTRUCTION COSTS (LOW, MODERATE, HIGH)	None	None	Low	Moderate
	CONSTRUCTABILITY	N/A	N/A	Moderate - Coordination with the RR for right of way acquisitions and pedestrian/roadway improvements as well as any signal timing changes.	Moderate - Coordination with the RR for right of way acquisitions and pedestrian/roadway improvements as well as any signal timing changes.
	ABILITY TO CONSTRUCT IN PHASES	N/A	N/A	Yes	Yes
	USE OF EXISTING INFRASTRUCTURE	N/A	N/A	Yes	Northwest and Southeast corners require larger ROW takes and reconfiguration due to the right turn bypasses and sidewalk/trail enhancements in those corners.
DRAFT RECOMMENDATION					
NOTES					

DESCRIPTION		KEN PRATT BLVD & NELSON RD ALTERNATIVES					
		Existing 2017	No Action	1 Conventional Intersection	1a Conventional w/ Bus Exemption	2 Conventional Intersection w/ 3 EBT Lanes	3 Roundabout
SAFETY & OPERATIONS	AVERAGE NETWORK SPEED (MPH)	AM Peak Hour: 23 PM Peak Hour: 17	AM Peak Hour: 15 PM Peak Hour: 7	AM Peak Hour: 22 PM Peak Hour: 17	AM Peak Hour: 22 PM Peak Hour: 17	AM Peak Hour: 22 PM Peak Hour: 18	-
	TOTAL NETWORK DELAY (HR)	AM Peak Hour: 244.8 PM Peak Hour: 617.5	AM Peak Hour: 784.6 PM Peak Hour: 2,216.5	AM Peak Hour: 146.9 PM Peak Hour: 365.7	AM Peak Hour: 146.9 PM Peak Hour: 365.7	AM Peak Hour: 140.5 PM Peak Hour: 331.5	-
	AVERAGE THROUGH MOVEMENT PEAK HOUR QUEUE LENGTHS (FT) (AM / PM)	Westbound at: Nelson: 114 / 106 Eastbound at: Nelson: 87 / 72	Westbound at: Nelson: 325 / 232 Eastbound at: Nelson: 24 / 47	Westbound at: Nelson: 141 / 94 Eastbound at: Nelson: 102 / 616	Westbound at: Nelson: 141 / 94 Eastbound at: Nelson: 102 / 616	Westbound at: Nelson: 145 / 95 Eastbound at: Nelson: 79 / 99	-
	INTERSECTION PEAK HOUR LOS & DELAY (SEC/VEH) (AM / PM)	AM Peak Hour: 14.7/ B PM Peak Hour: 15.7 / B	AM Peak Hour: 29.6 / C PM Peak Hour: 23.5 / C	AM Peak Hour: 18.0 / B PM Peak Hour: 26.4 / C	AM Peak Hour: 18.0 / B PM Peak Hour: 26.4 / C	AM Peak Hour: 16.8 / B PM Peak Hour: 15.5 / B	-
	PREDICTED VEHICULAR SAFETY BENEFITS	No Change	No Change	No Change Protected left turns for EB and maintaining site lines through tree trimming may alleviate approach turn and rear end crashes at the intersection.	No Change Protected left turns for EB and maintaining site lines through tree trimming may alleviate approach turn and rear end crashes at the intersection.	No Change Protected left turns for EB and maintaining site lines through tree trimming may alleviate approach turn and rear end crashes at the intersection.	Yes - May reduce Approach Turn crashes by eliminating that conflict.
	MULTIMODAL CONFLICT REDUCTION	No Change	No Change	No Change	Transit able to move through easier.	No Change	No Change
	CRITICAL ISSUES	N/A	Does not address future capacity or multi-modal needs	WB left-turn from Price Road is eliminated.	WB left-turn from Price Road is eliminated.	WB left-turn from Price Road is eliminated. Pedestrian crossing is increased.	Roundabout goes through RR tracks. Three lane roundabout is confusing to navigate, and operationally deficient located between two other signals in coordination along an arterial. Coordination with the railroad.
MULTI-MODAL ACCOMMODATIONS	PEDESTRIAN/BICYCLIST CONNECTIONS	No Change	No Change	Bike slip ramp on northwest corner	Bike slip ramp on northwest corner	Bike slip ramp on northwest corner	No Change
	PEDESTRIAN/BICYCLIST MOVEMENT COMFORT & SAFETY	No Change	No Change	Increased crossing distance across the east leg of the intersection.	Increased crossing distance across the east leg of the intersection.	Increased crossing distance across the east and west leg of the intersection.	Increased conflict points between vehicles and pedestrians. May lead to less comfort.
	TRANSIT CONNECTIONS	No Change	No Change		Option for dedicated bus through movement in the WB direction		No Change
CAPITAL IMPACTS	ROW REQUIRED (ACRES)	None	None	None	None	None	None
	ROW REQUIRED (PROPERTIES)	None	None	None	None	None	None
	PROPERTY ACCESS IMPACTS	None	None	Access to EB Nelson Road and Ken Pratt Road from Price Road is eliminated.	Access to EB Nelson Road and Ken Pratt Road from Price Road is eliminated.	Access to EB Nelson Road and Ken Pratt Road from Price Road is eliminated.	2: Strip mall on the Northwest corner. Access from the Frontage Road is taken from the configuration of the roundabout. Flea Market on Nelson.
	AESTHETIC TREATMENT OPPORTUNITIES	None	None	Addition of medians	Addition of medians	Addition of medians	Addition of medians and possible landscaped center for the roundabout.
	CONSISTENCY WITH ESTABLISHED LOCAL AND REGIONAL PLANS	No	No	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB approach accommodates this.	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB approach accommodates this.	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB and EB approach accommodates this.	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB approach accommodates this.
FEASIBILITY AND COST	CONCEPTUAL-LEVEL PROBABLE CONSTRUCTION COSTS (LOW, MODERATE, HIGH)	None	None	Low	Low	Moderate	High
	CONSTRUCTABILITY	N/A	N/A	Basic	Basic	Basic	Difficult
	ABILITY TO CONSTRUCT IN PHASES	N/A	N/A	Yes	Yes	Yes	No
	USE OF EXISTING INFRASTRUCTURE	N/A	N/A	Yes - existing sidealks may be maintained.	Yes - existing sidealks may be maintained.	Yes - existing sidealks may be maintained.	No - the new footprint changes connections and most of the existing infrastructure.
DRAFT RECOMMENDATION							Not recommeded for further study
NOTES							

DESCRIPTION		HOVER ST & CLOVER BASIN ALTERNATIVES				
		Existing 2017	No Action	1 Conventional Intersection w/ Dual EBR	1a Conventional w/ Dual EBRT Island	1b Conventional w/ Dual EBRT and Exclusive SBRT
SAFETY & OPERATIONS	AVERAGE NETWORK SPEED (MPH)	AM Peak Hour: 23 PM Peak Hour: 17	AM Peak Hour: 15 PM Peak Hour: 7	AM Peak Hour: 22 PM Peak Hour: 18	AM Peak Hour: 22 PM Peak Hour: 18	AM Peak Hour: 22 PM Peak Hour: 17
	TOTAL NETWORK DELAY (HR)	AM Peak Hour: 244.8 PM Peak Hour: 617.5	AM Peak Hour: 784.6 PM Peak Hour: 2,216.5	AM Peak Hour: 140.5 PM Peak Hour: 331.5	AM Peak Hour: 140.5 PM Peak Hour: 331.5	AM Peak Hour: 142.1 PM Peak Hour: 337.6
	AVERAGE THROUGH MOVEMENT PEAK HOUR QUEUE LENGTHS (FT) (AM / PM)	Southbound at: Hover: 224 / 165 Northbound at: Hover: 77 / 130	Southbound at: Hover: 199 / 1,038 Northbound at: Hover: 707 / 146	Southbound at: Hover: 615 / 308 Northbound at: Hover: 37 / 251	Southbound at: Hover: 615 / 308 Northbound at: Hover: 37 / 251	Southbound at: Hover: 182 / 171 Northbound at: Hover: 44 / 241
	INTERSECTION PEAK HOUR LOS & DELAY (SEC/VEH) (AM / PM)	AM Peak Hour: 19.2 / B PM Peak Hour: 28.1 / C	AM Peak Hour: 70.9 / E PM Peak Hour: 148.5 / F	AM Peak Hour: 32.2 / C PM Peak Hour: 43.9 / D	AM Peak Hour: 32.2 / C PM Peak Hour: 43.9 / D	AM Peak Hour: 19.0 / B PM Peak Hour: 44.0 / D
	PREDICTED VEHICULAR SAFETY BENEFITS	No Change	No Change	Addition of NBLT lane may help with reducing approach turn crashes. Additional capacity N/S.	Addition of NBLT lane may help with reducing approach turn crashes. Additional capacity N/S.	Addition of NBLT lane may help with reducing approach turn crashes. Additional capacity N/S.
	MULTIMODAL CONFLICT REDUCTION	No Change	No Change	Longer crossing distance with addition of second EB right turn lane.	Crossing distances are shortened with the addition of island for the EB dedicated right turns.	Longer crossing distance for north leg, shortened crossing distance on west leg if island installed.
	CRITICAL ISSUES	No Change	Does not address future capacity or multi-modal needs	No Change	No Change	No Change
MULTI-MODAL ACCOMMODATIONS	PEDESTRIAN/BICYCLIST CONNECTIONS	Sidepaths on either side of Hover, access to greenway west of intersection	No Change	No Change	No Change	No Change
	PEDESTRIAN/BICYCLIST MOVEMENT COMFORT & SAFETY	Large intersection and no bike paths. May not be comfortable for users	No Change	Longer crossing may make pedestrians feel less safe.	Island can be used as refuge on west leg for ped and bike crossing. Less distance to cross.	Longer crossing may make pedestrians feel less safe. Island may be installed an used as refuge.
	TRANSIT CONNECTIONS	-	-	-	-	-
CAPITAL IMPACTS	ROW REQUIRED (ACRES)	None	None	None	> 0.01	0.01
	ROW REQUIRED (PROPERTIES)	None	None	None	Commercial: 1	Commercial: 2
	PROPERTY ACCESS IMPACTS	None	None	None	None	None
	AESTHETIC TREATMENT OPPORTUNITIES	None	None	None	None	None
	CONSISTENCY WITH ESTABLISHED LOCAL AND REGIONAL PLANS	No	No	Yes - consistent with the City of Longmont Roadway Plan by; creating dual NBLT, three SB thru lanes, and future plans to change Hover from 4 lanes to 6. No - not adding a designated SBRT lane.	Yes - consistent with the City of Longmont Roadway Plan by; creating dual NBLT, three SB thru lanes, and future plans to change Hover from 4 lanes to 6. No - not adding a designated SBRT lane.	Yes - consistent with the City of Longmont Roadway Plan by; creating dual NBLT, three SB thru lanes, and future plans to change Hover from 4 lanes to 6.
FEASIBILITY AND COST	CONCEPTUAL-LEVEL PROBABLE CONSTRUCTION COSTS (LOW, MODERATE, HIGH)	None	None	Low	Moderate	Low
	CONSTRUCTABILITY	N/A	N/A	Basic	Basic	Basic
	ABILITY TO CONSTRUCT IN PHASES	N/A	N/A	Yes	Yes	Yes
	USE OF EXISTING INFRASTRUCTURE	N/A	N/A	Existing sidewalks and westbaound and southbound approach medians are maintained	Sidewalks on every leg except for the southwest corner are maintained. Medians at westbound and southbound approaches also maintained.	Sidewalks maintained, and southbound approach median. Westbound median enlarged.
DRAFT RECOMMENDATION						
NOTES						

DESCRIPTION		HOVER ST & BENT WAY ALTERNATIVES		
		Existing 2017	No Action	1 Conventional Intersection
SAFETY & OPERATIONS	AVERAGE NETWORK SPEED (MPH)	AM Peak Hour: 23 PM Peak Hour: 17	AM Peak Hour: 15 PM Peak Hour: 7	AM Peak Hour: 22 PM Peak Hour: 18
	TOTAL NETWORK DELAY (HR)	AM Peak Hour: 244.8 PM Peak Hour: 617.5	AM Peak Hour: 784.6 PM Peak Hour: 2,216.5	AM Peak Hour: 140.5 PM Peak Hour: 331.5
	AVERAGE THROUGH MOVEMENT PEAK HOUR QUEUE LENGTHS (FT) (AM / PM)	Southbound at: Hover: 23 / 105 Northbound at: Hover: 5 / 270	Southbound at: Hover: 292 / 624 Northbound at: Hover: 161 / 658	Southbound at: Hover: 129 / 86 Northbound at: Hover: 126 / 213
	INTERSECTION PEAK HOUR LOS & DELAY (SEC/VEH) (AM / PM)	AM Peak Hour: 9 / A PM Peak Hour: 28.4 / C	AM Peak Hour: 15.4 / B PM Peak Hour: 151.7 / F	AM Peak Hour: 14.7 / B PM Peak Hour: 29.9 / C
	PREDICTED VEHICULAR SAFETY BENEFITS	No Change	No Change	Added capacity for N/S traffic may help with rear end type crashes, while additional left turn lanes for northbound and southbound may reduce approach turn and sideswipe type crashes at this location in addition to protected left turn phasing added.
	MULTIMODAL CONFLICT REDUCTION	No Change	No Change	Still have pedestrian/vehicle conflicts during green phase in E/W direction.
	CRITICAL ISSUES	N/A	Does not address future capacity or multi-modal needs	Look into pedestrian phasing for E/W crossings. Require signal upgrades including backplates, additional heads, and timing for protected left turns.
MULTI-MODAL ACCOMMODATIONS	PEDESTRIAN/BICYCLIST CONNECTIONS	Access to pedestrian underpass on greenway.	No Change	No Change
	PEDESTRIAN/BICYCLIST MOVEMENT COMFORT & SAFETY	Can use underpass to cross roadway, otherwise large intersection to cross.	No Change	Slightly longer crossing distance across north and south legs. Conflicts between turning vehicles and pedestrians still prevalant in E/W direction
	TRANSIT CONNECTIONS	None	No Change	No Change
CAPITAL IMPACTS	ROW REQUIRED (ACRES)	None	None	0.01
	ROW REQUIRED (PROPERTIES)	None	None	None
	PROPERTY ACCESS IMPACTS	None	None	None
	AESTHETIC TREATMENT OPPORTUNITIES	None	None	None
	CONSISTENCY WITH ESTABLISHED LOCAL AND REGIONAL PLANS	No	No	Yes - The Longmont Roadway Plan calls for the Hover to be expanded from 4 to 6 lanes in this area.
FEASIBILITY AND COST	CONCEPTUAL-LEVEL PROBABLE CONSTRUCTION COSTS (LOW, MODERATE, HIGH)	None	None	Low - construction within the existing rght of way, Removal of median. May require redesign of signals arms to reach the new left turn lanes for NB and SB.
	CONSTRUCTABILITY	N/A	N/A	Basic - work within existing right of way consisting mostly of striping.
	ABILITY TO CONSTRUCT IN PHASES	N/A	N/A	Yes - striping and removal of medians be done prior to any necessary signal work.
	USE OF EXISTING INFRASTRUCTURE	N/A	N/A	Existing sidewalks and medians for WB and EB are maintained. The median for southbound is taken out and NB median is shortened to allow for the additional left turn lanes.
DRAFT RECOMMENDATION				
NOTES				

DESCRIPTION		KEN PRATT BLVD & NELSON RD ALTERNATIVES					
		Existing 2017	No Action	1 Conventional Intersection	1a Conventional w/ Bus Exemption	2 Conventional Intersection w/ 3 EBT Lanes	3 Roundabout
SAFETY & OPERATIONS	AVERAGE NETWORK SPEED (MPH)	AM Peak Hour: 23 PM Peak Hour: 17	AM Peak Hour: 15 PM Peak Hour: 7	AM Peak Hour: 22 PM Peak Hour: 17	AM Peak Hour: 22 PM Peak Hour: 17	AM Peak Hour: 22 PM Peak Hour: 18	-
	TOTAL NETWORK DELAY (HR)	AM Peak Hour: 244.8 PM Peak Hour: 617.5	AM Peak Hour: 784.6 PM Peak Hour: 2,216.5	AM Peak Hour: 146.9 PM Peak Hour: 365.7	AM Peak Hour: 146.9 PM Peak Hour: 365.7	AM Peak Hour: 140.5 PM Peak Hour: 331.5	-
	AVERAGE THROUGH MOVEMENT PEAK HOUR QUEUE LENGTHS (FT) (AM / PM)	Westbound at: Nelson: 114 / 106 Eastbound at: Nelson: 87 / 72	Westbound at: Nelson: 325 / 232 Eastbound at: Nelson: 24 / 47	Westbound at: Nelson: 141 / 94 Eastbound at: Nelson: 102 / 616	Westbound at: Nelson: 141 / 94 Eastbound at: Nelson: 102 / 616	Westbound at: Nelson: 145 / 95 Eastbound at: Nelson: 79 / 99	-
	INTERSECTION PEAK HOUR LOS & DELAY (SEC/VEH) (AM / PM)	AM Peak Hour: 14.7/ B PM Peak Hour: 15.7 / B	AM Peak Hour: 29.6 / C PM Peak Hour: 23.5 / C	AM Peak Hour: 18.0 / B PM Peak Hour: 26.4 / C	AM Peak Hour: 18.0 / B PM Peak Hour: 26.4 / C	AM Peak Hour: 16.8 / B PM Peak Hour: 15.5 / B	-
	PREDICTED VEHICULAR SAFETY BENEFITS	No Change	No Change	No Change Protected left turns for EB and maintaining site lines through tree trimming may alleviate approach turn and rear end crashes at the intersection.	No Change Protected left turns for EB and maintaining site lines through tree trimming may alleviate approach turn and rear end crashes at the intersection.	No Change Protected left turns for EB and maintaining site lines through tree trimming may alleviate approach turn and rear end crashes at the intersection.	Yes - May reduce Approach Turn crashes by eliminating that conflict.
	MULTIMODAL CONFLICT REDUCTION	No Change	No Change	No Change	Transit able to move through easier.	No Change	No Change
	CRITICAL ISSUES	N/A	Does not address future capacity or multi-modal needs	WB left-turn from Price Road is eliminated.	WB left-turn from Price Road is eliminated.	WB left-turn from Price Road is eliminated. Pedestrian crossing is increased.	Roundabout goes through RR tracks. Three lane roundabout is confusing to navigate, and operationally deficient located between two other signals in coordination along an arterial. Coordination with the railroad.
MULTI-MODAL ACCOMMODATIONS	PEDESTRIAN/BICYCLIST CONNECTIONS	No Change	No Change	Bike slip ramp on northwest corner	Bike slip ramp on northwest corner	Bike slip ramp on northwest corner	No Change
	PEDESTRIAN/BICYCLIST MOVEMENT COMFORT & SAFETY	No Change	No Change	Increased crossing distance across the east leg of the intersection.	Increased crossing distance across the east leg of the intersection.	Increased crossing distance across the east and west leg of the intersection.	Increased conflict points between vehicles and pedestrians. May lead to less comfort.
	TRANSIT CONNECTIONS	No Change	No Change		Option for dedicated bus through movement in the WB direction		No Change
CAPITAL IMPACTS	ROW REQUIRED (ACRES)	None	None	None	None	None	None
	ROW REQUIRED (PROPERTIES)	None	None	None	None	None	None
	PROPERTY ACCESS IMPACTS	None	None	Access to EB Nelson Road and Ken Pratt Road from Price Road is eliminated.	Access to EB Nelson Road and Ken Pratt Road from Price Road is eliminated.	Access to EB Nelson Road and Ken Pratt Road from Price Road is eliminated.	2: Strip mall on the Northwest corner. Access from the Frontage Road is taken from the configuration of the roundabout. Flea Market on Nelson.
	AESTHETIC TREATMENT OPPORTUNITIES	None	None	Addition of medians	Addition of medians	Addition of medians	Addition of medians and possible landscaped center for the roundabout.
	CONSISTENCY WITH ESTABLISHED LOCAL AND REGIONAL PLANS	No	No	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB approach accommodates this.	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB approach accommodates this.	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB and EB approach accommodates this.	Yes - Longmont Roadway Plan calls for Ken Pratt to be widened from 4 to 6 lanes from Nelson to Pratt; the WB approach accommodates this.
FEASIBILITY AND COST	CONCEPTUAL-LEVEL PROBABLE CONSTRUCTION COSTS (LOW, MODERATE, HIGH)	None	None	Low	Low	Moderate	High
	CONSTRUCTABILITY	N/A	N/A	Basic	Basic	Basic	Difficult
	ABILITY TO CONSTRUCT IN PHASES	N/A	N/A	Yes	Yes	Yes	No
	USE OF EXISTING INFRASTRUCTURE	N/A	N/A	Yes - existing sidealks may be maintained.	Yes - existing sidealks may be maintained.	Yes - existing sidealks may be maintained.	No - the new footprint changes connections and most of the existing infrastructure.
DRAFT RECOMMENDATION							Not recommeded for further study
NOTES							

DESCRIPTION		NELSON RD & SUNSET ST ALTERNATIVES		
		Existing 2017	No Action	1 Conventional Intersection
SAFETY & OPERATIONS	AVERAGE NETWORK SPEED (MPH)	AM Peak Hour: 23 PM Peak Hour: 17	AM Peak Hour: 15 PM Peak Hour: 7	AM Peak Hour: 22 PM Peak Hour: 18
	TOTAL NETWORK DELAY (HR)	AM Peak Hour: 244.8 PM Peak Hour: 617.5	AM Peak Hour: 784.6 PM Peak Hour: 2,216.5	AM Peak Hour: 140.5 PM Peak Hour: 331.5
	AVERAGE THROUGH MOVEMENT PEAK HOUR QUEUE LENGTHS (FT) (AM / PM)	Westbound: 153 / 127 Eastbound: 225 / 109	Westbound: 98 / 252 Eastbound: 113 / 105	Westbound: 88 / 222 Eastbound: 119 / 158
	INTERSECTION PEAK HOUR LOS & DELAY (SEC/VEH) (AM / PM)	AM Peak Hour: 22.6 / C PM Peak Hour: 30.9 / C	AM Peak Hour: 23.9 / C PM Peak Hour: 57.8 / E	AM Peak Hour: 23.3 / C PM Peak Hour: 37.9 / D
	PREDICTED VEHICULAR SAFETY BENEFITS	No Change	No Change	Protected lefts for all approaches may eliminate potential conflicts with pedestrians.
	MULTIMODAL CONFLICT REDUCTION	No Change	No Change	Includes the addition of designated bike lanes reducing conflicts with vehicles. Signal timing changes to reflect a protected left in all directions would also eliminate potential conflicts for pedestrians.
	CRITICAL ISSUES	N/A	Does not address future capacity or multi-modal needs	ROW acqusition for wider south leg intersection footprint.
MULTI-MODAL ACCOMMODATIONS	PEDESTRIAN/BICYCLIST CONNECTIONS	Bike lanes present on Nelson.	No Change	Bike lanes expanded to Nelson/Hover.
	PEDESTRIAN/BICYCLIST MOVEMENT COMFORT & SAFETY	Bike lanes on Nelson and ample time for pedestrians to cross intersection. Attached sidewalk on Nelson and Sunset may cause pedestrians to feel less safe.	No Change	Sidewalk widened.
	TRANSIT CONNECTIONS	None	No Change	No Change
CAPITAL IMPACTS	ROW REQUIRED (ACRES)	None	None	0.17
	ROW REQUIRED (PROPERTIES)	None	None	Commercial: 3
	PROPERTY ACCESS IMPACTS	None	None	None
	AESTHETIC TREATMENT OPPORTUNITIES	None	None	None
	CONSISTENCY WITH ESTABLISHED LOCAL AND REGIONAL PLANS	No	No	No - Per the City of Longmont BRT Plan the Sunset Street corridor was identified as a preferred route.
FEASIBILITY AND COST	CONCEPTUAL-LEVEL PROBABLE CONSTRUCTION COSTS (LOW, MODERATE, HIGH)	None	None	Low - will require some ROW acquisition to accommodate the proposed NBRT lane. Otherwise, improvements primarily include striping.
	CONSTRUCTABILITY	N/A	N/A	Basic - Mostly striping efforts.
	ABILITY TO CONSTRUCT IN PHASES	N/A	N/A	No
	USE OF EXISTING INFRASTRUCTURE	N/A	N/A	The west side of Sunset Street will be maintained as is. The sidewalk the block southeast of the intersetion will need to be rebuilt to accommodate for the additional NBRT lane.
DRAFT RECOMMENDATION				
NOTES				

Appendix D

Traffic Operations Analysis Worksheets

Table X
2040 Future Conditions
Longmont, CO

Conventional Intersection Alternatives

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	54.0	D	48.7	D	1.9	A	45.5	D	29.5	C	1210	123	225	920	57	106	260		
		SB	250	970	780	2,000	50.0	D	36.4	D	4.6	A	26.2	C			665	128	194	180	54	131	665		
		EB	250	470	125	845	59.2	E	28.9	C	5.3	A	34.9	C			6307	83	130	430	34	75	0		
		WB	185	1150	200	1,535	42.0	D	19.0	B	3.0	A	19.9	B			1378	125	223	215	40	100	1378		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	43.3	D	0.0	A	1.6	A	26.6	C	16.5	B	297	11	42	0			85		
		SB	50	0	30	80	51.9	D	0.0	A	5.6	A	32.2	C			300	39	102	0			300	20	52
		EB	45	755	10	810	23.6	C	8.6	A	5.2	A	9.3	A			1378	60	145	845	23	65	1378	1	15
		WB	90	1490	100	1,680	8.8	A	1.8	A	0.3	A	2.1	A			584	16	68	380	22	48	584	2	16
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.6	A	0			0			0		
		SB	20	0	30	50	37.9	E	0.0	A	15.3	C	21.8	C			580			580	20	62	50	28	64
		EB	30	785	0	815	16.7	C	2.0	A	0.0	A	2.5	A			660			120	14	42	0		
		WB	0	1650	65	1,715	0.0	A	6.7	A	3.0	A	6.5	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	73.1	E	27.9	C	9.3	A	30.3	C	38.5	D	3865	113	241	500	46	111	120	32	143
		SB	20	480	200	700	42.7	D	42.5	D	13.9	B	34.3	C			1231	308	539	220	32	244	300	87	325
		EB	80	635	90	805	74.0	E	29.2	C	4.0	A	31.3	C			1302	155	271	90	62	184	0		
		WB	300	1455	45	1,800	52.7	D	44.1	D	29.4	C	45.3	D			1405	408	634	260	246	370	80	6	65
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.7	B	0			0			0		
		SB	525	0	110	635	46.3	D	0.0	A	24.8	C	42.6	D			0			250	162	199	50	47	75
		EB	25	730	0	755	22.0	C	13.6	B	0.0	A	13.8	B			1550	92	165	900	19	45	0		
		WB	0	1690	635	2,325	0.0	A	11.2	B	10.1	B	10.9	B			1631	100	226	0			1631	33	113
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	66.7	E	6.1	A	6.1	A	24.4	C	34.1	C	665	10	36	220	120	201	0		
		SB	40	1640	240	1,920	51.0	D	36.5	D	64.1	E	39.9	D			1035	638	954	250	32	84	0		
		EB	85	30	360	475	44.1	D	39.6	D	27.1	C	30.5	C			2641	20	64	155	37	73	1000	117	188
		WB	0	65	15	80	0.0	A	53.7	D	27.0	C	47.0	D			449	72	143	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	1.9	A	2.0	A	1.9	A	7.3	A	1035	10	60	0			0		
		SB	45	1880	0	1,925	9.9	A	8.4	A	0.0	A	8.4	A			1060	113	459	230	20	53	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	64.6	E	0.0	A	6.3	A	50.0	D			1000			1000	47	107	1000	9	31
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	57.5	E	6.9	A	4.4	A	14.2	B	14.3	B	1060	62	137	190	53	87	0		
		SB	100	1710	125	1,935	41.4	D	9.2	A	11.9	B	10.7	B			650	129	240	275	40	76	0		
		EB	90	20	190	300	48.9	D	39.5	D	25.4	C	32.8	C			1032	18	46	150	72	132	240	107	190
		WB	25	20	40	85	56.0	E	45.6	D	6.2	A	29.0	C			1138	13	37	50	18	50	150	12	46
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	57.1	E	12.6	B	9.4	A	16.3	B	30.9	C	650	64	172	240	39	83	650		
		SB	310	1720	240	2,270	50.3	D	24.1	C	35.1	D	28.7	C			2534	295	546	220	127	199	0		
		EB	125	325	80	530	76.7	E	39.0	D	14.4	B	44.4	D			734	92	162	290	70	114	600	35	68
		WB	135	340	190	665	52.0	D	58.7	E	13.9	B	44.1	D			2489	134	199	190	73	115	210	79	158
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	28.7	C	20.1	C	8.9	A	19.7	B	24.0	C	1231	117	236	310	37	76	235	19	112
		SB	100	450	140	690	32.9	C	35.6	D	9.0	A	30.2	C			2090	262	427	150	78	174	150	87	324
		EB	140	425	150	715	31.5	C	31.5	C	23.1	C	29.7	C			2489	121	183	395	93	185	345	68	150
		WB	100	460	190	750	18.8	B	18.8	B	7.8	A	16.2	B			738	101	190	515	46	85	105	42	103
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.2	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	8.2	A	8.2	A			1000			0			1000	72	109
		EB	40	545	0	585	13.4	B	11.4	B	0.0	A	11.5	B			738	63	192	50	13	59	0		
		WB	0	550	110	660	0.0	A	1.0	A	1.2	A	1.0	A			159	4	33	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	85.6	F	49.6	D	3.4	A	50.4	D	81.4	F	1209	169	294	920	70	164	260		
		SB	360	1205	510	2,075	69.2	E	37.0	D	3.4	A	33.6	C			665	181	271	200	117	257	665		
		EB	850	1160	300	2,310	392.0	F	73.4	E	22.1	C	170.1	F			6307	1967	3169	430	634	650	250	10	156
		WB	105	710	390	1,205	44.6	D	49.3	D	24.9	C	41.1	D			1378	138	190	215	21	69	1378	264	425
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	39.6	D	46.9	D	2.2	A	18.9	B	16.6	B	628	28	104	0			85	5	73
		SB	260	20	95	375	54.8	D	60.8	E	9.7	A	42.5	D			591	192	326	0			591	41	73
		EB	95	1525	25	1,645	35.4	D	19.7	B	5.2	A	20.3	C			1378	161	282	845	45	105	1378	1	13
		WB	70	1080	200	1,350	50.4	D	3.4	A	1.4	A	5.4	A			585	46	89	380	42	103	585	13	36
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.8	A	0			0			0		
		SB	50	0	50	100	119.1	F	0.0	A	40.0	E	79.6	F			580			580	82	196	50	43	76
		EB	20	1820	0	1,840	12.3	B	3.1	A	0.0	A	3.2	A			660			120	8	45	0		
		WB	0	1300	60	1,360	0.0	A	6.4	A	2.5	A	6.3	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	75.6	E	51.1	D	42.7	D	53.8	D	45.4	D	3864	296	496	500	127	324	120	73	145
		SB	35	285	150	470	165.5	F	58.0	E	9.0	A	51.4	D			1231	193	308	220	42	130	300	23	229
		EB	250	1525	95	1,870	121.8	F	31.5	C	10.3	B	42.9	D			1300	397	615	90	212	230	320	11	160
		WB	90	1100	35	1,225	63.2	E	40.7	D	25.6	C	42.2	D			1405	255	418	260	76	251	80	2	33
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	15.8	B	0			0			0		
		SB	730	0	65	795	23.6	C	0.0	A	15.7	B	23.0	C			0			250	179	208	50	26	75
		EB	50	1600	0	1,650	43.4	D	12.8	B	0.0	A	13.7	B			1550	87	165	900	38	90	0		
		WB	0	1160	850	2,010	0.0	A	12.6	B	16.6	B	14.3	B			1631	102	222	0			1631	110	264
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	81.9	F	20.5	C	20.2	C	30.8	C	43.9	D	665	128	186	220	144	215	0		
		SB	175	1455	235	1,865	87.2	F	28.1	C	32.9	C	33.9	C			1034	307	497	250	153	274	0		
		EB	420	200	570	1,190	53.8	D	42.7	D	30.4	C	41.0	D			2641	138	234	155	174	259	1000	221	392
		WB	50	120	60	230	254.2	F	291.3	F	313.3	F	289.5	F			449	416	464	449	214	397	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	8.8	A	12.2	B	8.9	A	10.7	B	1034	129	204	0			0		
		SB	135	1685	0	1,820	45.8	D	4.1	A	0.0	A	7.1	A			1063	32	132	230	105	217	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	52.7	D	0.0	A	24.0	C	40.3	D			1000			1000	149	285	1000	73	177
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	38.5	D	15.4	B	17.5	B	19.3	B	22.6	C	1063	152	236	190	123	195	0		
		SB	170	1420	120	1,710	83.4	F	10.8	B	9.2	A	18.6	B			652	84	194	275	86	137	0		
		EB	175	80	300	555	66.3	E	45.3	D	19.9	B	37.5	D			1390	93	324	150	126	196	240	135	260
		WB	100	75	170	345	52.9	D	42.9	D	24.3	C	36.8	D			1324	61	166	50	72	123	150	71	158
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	79.3	E	64.9	E	70.3	E	66.8	E	62.4	E	652	454	620	240	168	370	652		
		SB	290	1365	150	1,805	77.1	E	25.0	C	24.9	C	33.6	C			2534	214	361	220	122	233	0		
		EB	590	520	125	1,235	149.3	F	56.3	E	21.1	C	95.6	F			746	468	665	290	418	478	600	89	325
		WB	220	450	325	995	72.5	E	75.7	E	31.8	C	61.1	E			2489	179	271	190	109	228	210	113	208
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	42.7	D	40.8	D	15.9	B	37.6	D	35.1	D	1231	189	361	310	64	174	235	41	140
		SB	120	300	140	560	77.4	E	35.9	D	11.8	B	38.8	D			2090	180	346	150	112	174	150	48	178
		EB	290	615	80	985	42.1	D	31.6	C	12.6	B	33.4	C			2489	170	314	395	171	313	345	21	48
		WB	90	740	120	950	29.0	C	34.9	C	19.9	B	32.7	C			738	203	335	515	46	112	105	82	223
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.2	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	8.6	A	8.6	A			1000			0			1000	43	80
		EB	60	765	0	825	28.2	D	14.6	B	0.0	A	15.6	C			738	134	233	50	41	74	0		
		WB	0	850	50	900	0.0	A	1.0	A	0.7	A	1.0	A			162	4	39	0			0		

Table X
2040 Future Conditions
Longmont, CO

Partial Displaced Left-Turn

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	133.7	F	55.4	E	2.9	A	69.5	E			0			0			260		
	PARTIAL DISPLACED LEFT TURN	SB	250	970	780	2,000	46.1	D	67.6	E	7.3	A	40.9	D	43.6	D	0			0			0		
	SUM OF ALL DELAYS	EB	250	470	125	845	58.6	E	26.5	C	2.1	A	32.8	C			0			0			0		
	AT DLT INTERSECTIONS	WB	185	1150	200	1,535	55.3	E	39.4	D	3.5	A	36.1	D			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	49.9	D	0.0	A	1.4	A	27.3	C			634	11	42	0			85		
		SB	50	0	30	80	55.4	E	0.0	A	6.6	A	38.0	D	4.8	A	596	42	90	0			596	14	40
		EB	45	755	10	810	25.2	C	3.2	A	1.3	A	4.2	A			1041	23	78	845	23	78	1041	2	21
		WB	90	1490	100	1,680	9.5	A	4.1	A	0.9	A	4.1	A			586	60	161	380	20	50	586	12	44
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		SB	20	0	30	50	47.8	E	0.0	A	16.6	C	26.2	D	6.3	A	580			580	15	61	50	22	63
		EB	30	785	0	815	19.6	C	1.7	A	0.0	A	2.3	A			660			120	17	56	0		
		WB	0	1650	65	1,715	0.0	A	7.7	A	3.3	A	7.5	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	84.6	F	30.2	C	10.7	B	33.0	C			3865	129	284	500	54	117	120	54	120
		SB	20	480	200	700	53.6	D	43.8	D	12.7	B	35.0	D	38.8	D	1231	265	468	220	13	96	300	107	300
		EB	80	635	90	805	72.8	E	30.5	C	4.3	A	32.3	C			1300	164	293	90	72	177	0		
		WB	300	1455	45	1,800	51.8	D	43.4	D	34.3	C	44.6	D			1405	418	633	260	247	370	80	2	33
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		SB	525	0	110	635	43.2	D	0.0	A	39.1	D	42.5	D	15.6	B	0			250	171	187	50	54	75
		EB	25	730	0	755	38.7	D	8.6	A	0.0	A	9.6	A			1550	51	162	900	22	60	0		
		WB	0	1690	635	2,325	0.0	A	10.6	B	8.2	A	10.0	B			1631	84	213	0			1631	34	98
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	72.5	E	11.1	B	10.2	B	28.3	C			688	52	160	220	143	261	0		
		SB	40	1640	240	1,920	64.6	E	24.2	C	34.0	C	26.2	C	28.9	C	1034	432	743	250	28	63	0		
		EB	85	30	360	475	49.9	D	50.2	D	31.0	C	36.0	D			2653	30	65	155	55	112	1000	115	204
		WB	0	65	15	80	0.0	A	60.2	E	41.8	D	56.4	E			449	79	144	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	3.8	A	3.9	A	3.8	A			1034	36	117	0			0		
		SB	45	1880	0	1,925	9.4	A	6.0	A	0.0	A	6.1	A	5.7	A	1063	93	256	230	21	53	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	28.2	C	0.0	A	5.5	A	21.8	C			1000			1000	33	72	1000	12	38
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	53.4	D	7.5	A	8.2	A	14.2	B			1063	72	158	190	56	98	0		
		SB	100	1710	125	1,935	54.2	D	8.5	A	10.5	B	10.7	B	15.1	B	652	98	182	275	52	89	0		
		EB	90	20	190	300	60.1	E	56.7	E	28.5	C	39.1	D			1390	15	38	150	83	170	240	106	188
		WB	25	20	40	85	56.7	E	43.3	D	5.8	A	30.1	C			1324	16	60	50	20	61	150	10	34
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	70.4	E	16.0	B	12.0	B	20.0	C			652	104	161	240	35	65	652		
		SB	310	1720	240	2,270	54.3	D	27.0	C	35.2	D	31.6	C	32.4	C	1396	379	558	220	134	251	0		
		EB	125	325	80	530	42.2	D	48.7	D	8.9	A	41.7	D			746	128	190	290	72	120	600	33	78
		WB	135	340	190	665	64.2	E	50.4	D	9.5	A	43.2	D			2489	154	246	190	75	125	210	56	104
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	42.7	D	35.0	D	8.9	A	32.5	C			1231	132	241	310	52	91	235	22	122
		SB	100	450	140	690	44.1	D	40.5	D	10.6	B	35.2	D	21.8	C	2090	282	502	150	90	174	150	98	325
		EB	140	425	150	715	18.6	B	10.5	B	9.7	A	11.7	B			2489	34	110	395	49	104	345	17	48
		WB	100	460	190	750	25.5	C	14.5	B	6.3	A	14.1	B			738	82	172	515	44	84	105	34	66
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	6.7	A	6.7	A	7.0	A	1000			0			1000	61	118
		EB	40	545	0	585	10.3	B	13.4	B	0.0	A	13.2	B			738	92	221	50	20	67	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.3	A	1.0	A			162	2	21	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	84.9	F	36.0	D	4.8	A	39.0	D			0			0			260		
	PARTIAL DISPLACED LEFT TURN	SB	360	1205	510	2,075	59.3	E	54.4	D	5.6	A	43.5	D	43.1	D	0			0			0		
	SUM OF ALL DELAYS	EB	850	1160	300	2,310	73.3	E	49.0	D	6.4	A	52.4	D			0			0			0		
	AT DLT INTERSECTIONS	WB	105	710	390	1,205	82.0	F	26.5	C	24.1	C	29.8	C			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	42.9	D	41.7	D	2.1	A	21.2	C			634	29	77	0			85	4	66
		SB	260	20	95	375	49.5	D	52.1	D	9.4	A	39.6	D	12.1	B	596	195	329	0			596	30	78
		EB	95	1525	25	1,645	36.3	D	8.3	A	2.5	A	9.8	A			1041	93	168	845	56	134	1041	3	22
		WB	70	1080	200	1,350	51.2	D	4.2	A	1.3	A	6.4	A			586	55	112	380	44	112	586	13	35
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		SB	50	0	50	100	121.9	F	0.0	A	47.5	E	84.7	F	6.5	A	580			580	87	194	50	42	75
		EB	20	1820	0	1,840	14.1	B	2.7	A	0.0	A	2.8	A			660			120	10	36	0		
		WB	0	1300	60	1,360	0.0	A	6.0	A	2.7	A	5.8	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	195.9	F	99.5	F	95.8	F	114.6	F			3864	569	963	500	189	300	120	63	120
		SB	35	285	150	470	220.0	F	47.7	D	10.0	B	46.7	D	45.3	D	1231	161	308	220	45	97	300	18	147
		EB	250	1525	95	1,870	81.6	F	23.8	C	6.2	A	29.8	C			1300	303	478	90	179	230	0		
		WB	90	1100	35	1,225	47.8	D	34.9	C	18.0	B	35.4	D			1405	233	371	260	34	92	0		
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		SB	730	0	65	795	34.8	C	0.0	A	27.1	C	34.1	C	16.5	B	0			250	175	201	50	25	75
		EB	50	1600	0	1,650	45.1	D	12.1	B	0.0	A	13.0	B			1550	95	151	900	38	89	0		
		WB	0	1160	850	2,010	0.0	A	10.9	B	15.6	B	12.9	B			1631	85	171	0			1631	91	274
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	75.7	E	24.8	C	26.1	C	33.2	C			687	233	402	220	170	250	0		
		SB	175	1455	235	1,865	142.8	F	27.4	C	33.6	C	38.6	D	45.6	D	1034	309	460	250	225	333	0		
		EB	420	200	570	1,190	60.0	E	43.5	D	24.7	C	41.2	D			2653	157	376	155	196	301	1000	150	246
		WB	50	120	60	230	159.5	F	355.3	F	347.4	F	309.2	F			449	436	478	449	218	460	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	11.1	B	11.9	B	11.1	B			1034	152	235	0			0		
		SB	135	1685	0	1,820	44.2	D	4.6	A	0.0	A	7.5	A	11.9	B	1063	41	123	230	109	188	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	54.6	D	0.0	A	26.6	C	42.1	D			1000			1000	153	275	1000	77	135
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	41.9	D	23.7	C	26.7	C	26.6	C			1063	210	325	190	133	202	0		
		SB	170	1420	120	1,710	76.8	E	10.6	B	10.8	B	17.2	B	28.7	C	652	91	152	275	82	129	0		
		EB	175	80	300	555	118.2	F	62.6	E	39.9	D	65.9	E			1390	246	778	150	149	199	240	139	265
		WB	100	75	170	345	50.4	D	43.7	D	45.6	D	46.5	D			1324	83	230	50	61	118	150	94	171
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	112.2	F	81.0	F	90.0	F	85.0	F			652	578	658	240	282	370	652		
		SB	290	1365	150	1,805	72.2	E	20.4	C	19.3	B	28.0	C	64.5	E	1396	201	314	220	121	221	0		
		EB	590	520	125	1,235	136.8	F	57.6	E	16.6	B	90.9	F			746	455	672	290	373	467	600	55	109
		WB	220	450	325	995	55.5	E	60.6	E	36.4	D	51.2	D			2489	170	234	190	96	152	210	171	255
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	47.1	D	53.5	D	24.9	C	49.1	D			1231	352	578	310	137	334	235	100	235
		SB	120	300	140	560	85.5	F	40.2	D	13.0	B	43.2	D	37.1	D	2090	233	470	150	111	174	150	74	243
		EB	290	615	80	985	44.2	D	24.5	C	13.6	B	29.4	C			2489	115	202	395	158	302	345	21	64
		WB	90	740	120	950	26.9	C	34.8	C	19.9	B	32.2	C			738	211	320	515	47	88	105	113	225
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	7.2	A	7.2	A	8.2	A	1000			0			1000	48	83
		EB	60	765	0	825	26.1	D	16.0	C	0.0	A	16.7	C			738	116	247	50	30	66	0		
		WB	0	850	50	900	0.0	A	0.8	A	0.7	A	0.8	A			162		7	0			0		

Table X
2040 Future Conditions
Longmont, CO

Median U-Turn Alternative

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	69.7	E	17.2	B	4.8	A	29.2	C	34.6	C	0			0			260		
	MEDIAN U-TURN	SB	250	970	780	2,000	53.5	D	23.2	C	11.9	B	22.6	C			0			0			0		
	SUM OF ALL DELAYS	EB	250	470	125	845	73.1	E	38.2	D	13.1	B	44.8	D			0			0			0		
	AT MUT INTERSECTIONS	WB	185	1150	200	1,535	65.7	E	51.4	D	15.4	B	48.4	D			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	49.6	D	0.0	A	1.8	A	31.2	C	6.6	A	634	10	28	0			85		
		SB	50	0	30	80	53.8	D	0.0	A	7.7	A	36.1	D			596	38	90	0			596	15	40
		EB	45	755	10	810	28.0	C	3.6	A	0.3	A	5.0	A			694	36	113	845	26	71	694	1	13
		WB	90	1490	100	1,680	8.6	A	5.7	A	1.0	A	5.6	A			586	82	284	380	21	68	586	6	34
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.4	A	0			0			0		
		SB	20	0	30	50	44.9	E	0.0	A	15.7	C	28.2	D			580			580	22	65	50	25	66
		EB	30	785	0	815	28.8	D	1.9	A	0.0	A	2.6	A			660			120	15	65	0		
		WB	0	1650	65	1,715	0.0	A	9.0	A	4.2	A	8.8	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	76.5	E	31.8	C	12.6	B	31.9	C	54.5	D	3865	138	253	500	44	118	120	55	120
		SB	20	480	200	700	41.4	D	43.1	D	12.6	B	33.5	C			1231	270	458	220	11	102	300	106	300
		EB	80	635	90	805	62.6	E	34.7	C	5.1	A	34.5	C			1300	166	316	90	71	229	0		
		WB	300	1455	45	1,800	88.6	F	74.0	E	74.1	E	76.4	E			1405	717	1119	260	317	370	80	7	99
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	15.3	B	0			0			0		
		SB	525	0	110	635	39.5	D	0.0	A	31.9	C	38.0	D			0			250	163	192	50	54	75
		EB	25	730	0	755	52.8	D	9.2	A	0.0	A	10.9	B			1550	52	163	900	28	74	0		
		WB	0	1690	635	2,325	0.0	A	11.5	B	9.1	A	10.8	B			1631	98	207	0			1631	40	118
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	86.9	F	13.3	B	13.5	B	33.7	C	47.9	D	678	61	157	220	142	207	0		
		SB	40	1640	240	1,920	61.3	E	52.3	D	93.8	F	57.5	E			1034	934	1055	250	36	78	0		
		EB	85	30	360	475	51.1	D	49.2	D	39.1	D	42.0	D			2653	23	71	155	43	84	1000	119	231
		WB	0	65	15	80	0.0	A	65.6	E	30.5	C	58.2	E			449	66	146	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	3.0	A	3.3	A	3.0	A	17.6	B	1034	17	87	0			0		
		SB	45	1880	0	1,925	8.3	A	24.7	C	0.0	A	24.3	C			1063	302	540	230	18	58	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	36.9	D	0.0	A	6.5	A	28.6	C			1000			1000	30	74	1000	10	30
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	51.9	D	6.3	A	7.7	A	13.0	B	15.9	B	1063	65	153	190	64	115	0		
		SB	100	1710	125	1,935	53.6	D	10.4	B	14.2	B	12.8	B			652	99	253	275	54	95	0		
		EB	90	20	190	300	57.3	E	53.1	D	28.6	C	39.3	D			1390	19	66	150	81	148	240	96	190
		WB	25	20	40	85	59.1	E	59.3	E	5.3	A	33.9	C			1324	18	59	50	20	62	150	11	28
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	68.4	E	15.0	B	16.5	B	18.6	B	31.2	C	652	97	179	240	31	66	652		
		SB	310	1720	240	2,270	57.3	E	24.3	C	28.8	C	29.4	C			1396	328	489	220	136	192	0		
		EB	125	325	80	530	43.7	D	49.3	D	11.5	B	42.7	D			746	129	207	290	66	104	600	35	79
		WB	135	340	190	665	60.8	E	51.9	D	13.9	B	42.6	D			2489	158	248	190	76	146	210	69	160
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	48.2	D	33.0	C	9.9	A	32.3	C	23.9	C	1231	143	278	310	53	105	235	25	171
		SB	100	450	140	690	46.9	D	42.3	D	11.3	B	36.8	D			2090	314	569	150	98	175	150	93	325
		EB	140	425	150	715	26.6	C	10.7	B	10.8	B	13.6	B			2489	33	65	395	58	138	345	19	62
		WB	100	460	190	750	31.7	C	18.1	B	7.2	A	17.7	B			738	99	176	515	62	138	105	35	68
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.2	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	9.8	A	9.8	A			1000			0			1000	80	162
		EB	40	545	0	585	9.9	A	7.5	A	0.0	A	7.7	A			738	66	179	50	19	68	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.3	A	1.0	A			162	3	37	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	81.7	F	27.6	C	12.6	B	33.2	C	58.2	E	0			0			260		
	MEDIAN U-TURN	SB	360	1205	510	2,075	91.9	F	67.3	E	12.6	B	58.1	E			0			0			0		
	SUM OF ALL DELAYS	EB	850	1160	300	2,310	133.0	F	71.1	E	18.2	B	87.0	F			0			0			0		
	AT MUT INTERSECTIONS	WB	105	710	390	1,205	78.7	E	32.3	C	26.0	C	34.3	C			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	44.5	D	39.0	D	2.6	A	17.3	B	15.3	B	634	24	101	0			85	7	37
		SB	260	20	95	375	47.5	D	51.1	D	10.8	B	38.7	D			596	200	302	0			596	31	82
		EB	95	1525	25	1,645	63.2	E	14.5	B	1.7	A	16.9	B			694	213	288	750	71	175	694	6	21
		WB	70	1080	200	1,350	38.1	D	4.7	A	1.6	A	5.9	A			586	52	125	380	33	81	586	15	43
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.5	A	0			0			0		
		SB	50	0	50	100	118.7	F	0.0	A	49.3	E	88.2	F			580			580	96	200	50	41	75
		EB	20	1820	0	1,840	18.2	C	3.5	A	0.0	A	3.6	A			660			120	10	36	0		
		WB	0	1300	60	1,360	0.0	A	7.1	A	2.9	A	6.9	A			1400	28	422	0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	116.9	F	71.4	E	64.5	E	78.7	E	45.5	D	3864	411	625	500	162	264	120	67	120
		SB	35	285	150	470	190.4	F	41.4	D	8.9	A	42.5	D			1231	147	237	220	56	145	300	9	52
		EB	250	1525	95	1,870	109.8	F	30.9	C	10.4	B	40.2	D			1300	406	630	90	205	230	320	11	160
		WB	90	1100	35	1,225	43.1	D	38.9	D	29.3	C	38.9	D			1405	241	365	260	28	73	80	7	66
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	17.2	B	0			0			0		
		SB	730	0	65	795	32.3	C	0.0	A	22.3	C	31.5	C			0			250	174	208	50	25	73
		EB	50	1600	0	1,650	32.0	C	13.5	B	0.0	A	13.9	B			1550	108	178	900	34	75	0		
		WB	0	1160	850	2,010	0.0	A	12.7	B	16.4	B	14.3	B			1631	148	730	0			1631	111	324
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	75.7	E	32.7	C	30.8	C	39.6	D	53.2	D	678	271	336	220	174	316	0		
		SB	175	1455	235	1,865	74.2	E	56.3	E	102.5	F	63.8	E			1034	737	960	250	144	235	0		
		EB	420	200	570	1,190	50.5	D	44.9	D	23.8	C	36.6	D			2653	141	319	155	180	287	1000	153	276
		WB	50	120	60	230	294.0	F	232.2	F	194.9	F	236.3	F			449	304	411	449	149	338	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	10.4	B	12.7	B	10.5	B	16.4	B	1034	128	220	0			0		
		SB	135	1685	0	1,820	45.4	D	17.8	B	0.0	A	20.0	C			1063	180	480	230	124	287	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	55.2	E	0.0	A	23.0	C	40.7	D			1000			1000	135	218	1000	67	125
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	40.5	D	23.2	C	25.6	C	25.9	C	27.2	C	1063	208	349	190	137	253	0		
		SB	170	1420	120	1,710	77.8	E	10.7	B	8.3	A	16.8	B			652	80	167	275	71	113	0		
		EB	175	80	300	555	89.5	F	46.7	D	17.5	B	43.1	D			1390	127	274	150	151	187	240	134	236
		WB	100	75	170	345	65.8	E	61.5	E	71.7	E	67.8	E			1324	143	400	50	58	116	150	87	160
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	90.7	F	71.6	E	84.9	F	74.6	E	58.8	E	652	499	636	240	214	370	652		
		SB	290	1365	150	1,805	66.7	E	20.4	C	16.6	B	27.6	C			1396	192	299	220	117	190	0		
		EB	590	520	125	1,235	116.4	F	56.7	E	13.6	B	80.8	F			746	306	553	290	367	477	600	49	116
		WB	220	450	325	995	52.9	D	61.4	E	33.7	C	50.3	D			2489	175	254	190	109	212	210	155	267
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	46.5	D	48.5	D	22.4	C	44.7	D	37.6	D	1231	336	569	310	138	334	235	96	235
		SB	120	300	140	560	79.4	E	37.4	D	13.1	B	39.9	D			2090	203	365	150	117	175	150	69	172
		EB	290	615	80	985	51.3	D	28.9	C	11.9	B	34.2	C			2489	144	329	395	177	341	345	18	46
		WB	90	740	120	950	23.0	C	37.8	D	19.5	B	34.3	C			738	223	340	515	45	85	105	101	225
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.1	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	6.9	A	6.9	A			1000			0			1000	44	90
		EB	60	765	0	825	23.6	C	15.4	C	0.0	A	15.9	C			738	104	259	50	41	74	0		
		WB	0	850	50	900	0.0	A	1.0	A	0.7	A	1.0	A			162	6	79	0			0	4	54

Table X
2040 Future Conditions
Longmont, CO

Longmont CFI Alternative

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	53.9	D	32.4	C	1.3	A	35.1	D	45.7	D	0			0			0		
	Master Plan Alternative	SB	250	970	780	2,000	88.6	F	77.3	E	11.6	B	53.1	D			0			0			0		
	SUM OF ALL DELAYS	EB	250	470	125	845	81.3	F	41.4	D	7.9	A	48.2	D			0			0			0		
	AT INTERSECTIONS	WB	185	1150	200	1,535	113.4	F	36.0	D	12.0	B	42.2	D			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	54.6	D	0.0	A	2.1	A	39.6	D	0.6	A	634	15	57	0			85		
		SB	50	0	30	80	60.5	E	0.0	A	7.1	A	39.6	D			596	50	104	0			596	19	43
		EB	45	755	10	810	26.3	C	5.6	A	0.6	A	6.5	A			763	79	165	845	22	79	763	2	19
		WB	90	1490	100	1,680	10.2	B	4.7	A	0.6	A	4.7	A			586	71	213	380	24	66	586	7	26
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.6	A	0			0			0		
		SB	20	0	30	50	32.6	D	0.0	A	14.9	B	20.6	C			580			580	18	38	50	27	**52**
		EB	30	785	0	815	25.8	D	2.5	A	0.0	A	3.5	A			660			120	23	65	0		
		WB	0	1650	65	1,715	0.0	A	7.8	A	3.1	A	7.6	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	89.0	F	32.0	C	10.9	B	34.0	C	37.7	D	3865	133	286	500	51	103	120	36	**120**
		SB	20	480	200	700	55.2	E	50.4	D	13.8	B	39.7	D			1231	310	569	220	30	**219**	300	109	**300**
		EB	80	635	90	805	62.1	E	34.5	C	8.6	A	34.0	C			1300	163	295	90	53	**191**	320	17	157
		WB	300	1455	45	1,800	47.1	D	38.3	D	29.8	C	39.5	D			1405	364	609	260	**197**	**369**	80	4	**64**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	14.5	B	0			0			0		
		SB	525	0	110	635	37.4	D	0.0	A	32.3	C	36.5	D			0			250	166	**207**	50	**58**	**75**
		EB	25	730	0	755	46.0	D	8.5	A	0.0	A	10.0	B			1550	54	153	900	30	87	0		
		WB	0	1690	635	2,325	0.0	A	10.5	B	7.7	A	9.7	A			1631	86	222	0			1631	35	123
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	69.8	E	15.2	B	14.0	B	29.7	C	35.7	D	695	79	147	220	109	161	0		
		SB	40	1640	240	1,920	58.5	E	34.9	C	55.2	E	38.0	D			1034	577	**892**	250	36	82	0		
		EB	85	30	360	475	46.7	D	35.6	D	35.4	D	37.3	D			2653	27	86	155	38	70	1000	129	220
		WB	0	65	15	80	0.0	A	59.5	E	35.0	D	52.6	D			449	77	173	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	4.4	A	2.9	A	4.3	A	7.9	A	1034	42	97	0			0		
		SB	45	1880	0	1,925	8.8	A	9.0	A	0.0	A	9.0	A			1063	134	396	230	19	46	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	31.3	C	0.0	A	7.0	A	26.3	C			1000			1000	36	73	1000	10	38
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	48.1	D	8.0	A	6.9	A	12.9	B	13.9	B	1063	86	188	190	48	95	0		
		SB	100	1710	125	1,935	54.8	D	8.4	A	10.3	B	10.6	B			652	104	198	275	50	83	0		
		EB	90	20	190	300	58.3	E	43.6	D	24.7	C	35.7	D			1390	12	45	150	71	**153**	240	83	159
		WB	25	20	40	85	56.6	E	67.2	E	5.2	A	30.2	C			1324	14	52	50	18	**41**	150	13	32
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	62.4	E	15.6	B	14.4	B	18.9	B	31.7	C	652	105	170	240	31	72	652		
		SB	310	1720	240	2,270	59.2	E	26.0	C	33.9	C	31.4	C			1396	386	555	220	138	**199**	0		
		EB	125	325	80	530	46.4	D	47.7	D	11.8	B	41.6	D			746	123	180	290	64	105	600	42	91
		WB	135	340	190	665	59.9	E	52.3	D	10.6	B	41.2	D			2489	137	212	190	73	129	210	66	156
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	46.1	D	35.2	D	7.9	A	33.1	C	23.0	C	1231	131	256	310	50	91	235	14	42
		SB	100	450	140	690	50.6	D	42.5	D	13.2	B	37.6	D			2090	334	638	150	80	**174**	150	**133**	**325**
		EB	140	425	150	715	23.1	C	8.9	A	10.7	B	12.0	B			2489	24	63	395	55	140	345	19	55
		WB	100	460	190	750	23.7	C	15.6	B	7.5	A	14.7	B			738	82	140	515	45	91	105	38	**87**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	4.1	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	7.2	A	7.2	A			1000			0			1000	62	114
		EB	40	545	0	585	7.2	A	5.8	A	0.0	A	5.9	A			738	56	163	50	22	**56**	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.3	A	1.0	A			162	1	14	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	58.6	E	41.9	D	4.6	A	40.9	D	57.1	E	0			0			0		
	Master Plan Alternative	SB	360	1205	510	2,075	83.4	F	49.7	D	6.2	A	44.9	D			0			0			0		
	SUM OF ALL DELAYS	EB	850	1160	300	2,310	91.3	F	102.0	F	36.8	D	89.6	F			0			0			0		
	AT INTERSECTIONS	WB	105	710	390	1,205	74.9	E	44.3	D	10.4	B	36.0	D			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	38.4	D	28.5	C	1.9	A	16.0	B	19.1	B	634	26	72	0			85		
		SB	260	20	95	375	50.1	D	65.5	E	6.9	A	38.8	D			596	190	285	0			596	28	56
		EB	95	1525	25	1,645	49.7	D	24.9	C	1.8	A	26.0	C			763	329	517	845	68	136	763	7	37
		WB	70	1080	200	1,350	25.1	C	3.7	A	1.4	A	4.5	A			586	48	100	380	36	83	586	15	49
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.5	A	0			0			0		
		SB	50	0	50	100	48.6	E	0.0	A	10.3	B	29.9	D			580			580	42	96	50	28	**70**
		EB	20	1820	0	1,840	21.2	C	7.1	A	0.0	A	7.2	A			660	1	12	120	12	50	0		
		WB	0	1300	60	1,360	0.0	A	6.3	A	3.3	A	6.2	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	81.3	F	48.3	D	37.6	D	52.8	D	55.6	E	3864	289	543	500	123	299	120	54	**120**
		SB	35	285	150	470	75.0	E	37.4	D	9.3	A	31.2	C			1231	127	250	220	23	102	300	12	65
		EB	250	1525	95	1,870	90.1	F	40.7	D	11.8	B	46.0	D			1300	554	679	90	**202**	**230**	320	95	**476**
		WB	90	1100	35	1,225	93.6	F	79.8	E	71.8	E	80.8	F			1405	454	693	260	126	**224**	0		
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	17.2	B	0			0			0		
		SB	730	0	65	795	35.7	D	0.0	A	22.6	C	34.9	C			0			250	175	**193**	50	23	**75**
		EB	50	1600	0	1,650	50.5	D	12.2	B	0.0	A	13.1	B			1550	85	144	900	40	102	0		
		WB	0	1160	850	2,010	0.0	A	11.5	B	17.8	B	14.2	B			1631	92	224	0			1631	124	367
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	122.0	F	32.3	C	32.6	C	46.3	D	51.6	D	696	304	448	220	**240**	**312**	0		
		SB	175	1455	235	1,865	199.5	F	30.0	C	35.3	D	44.3	D			1034	330	495	250	**270**	**340**	0		
		EB	420	200	570	1,190	46.8	D	40.3	D	26.9	C	36.1	D			2653	131	218	155	**149**	**220**	1000	154	258
		WB	50	120	60	230	289.6	F	244.1	F	206.9	F	243.9	F			449	**355**	**418**	449	237	**433**	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	12.3	B	14.8	B	12.4	B	12.5	B	1034	144	250	0			0		
		SB	135	1685	0	1,820	49.8	D	4.4	A	0.0	A	7.9	A			1063	51	233	230	120	**223**	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	52.4	D	0.0	A	22.4	C	40.3	D			1000			1000	143	218	1000	60	111
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	42.5	D	22.5	C	24.1	C	25.6	C	26.7	C	1063	198	353	190	117	**245**	0		
		SB	170	1420	120	1,710	84.8	F	10.4	B	12.0	B	18.3	B			652	93	166	275	91	149	0		
		EB	175	80	300	555	89.3	F	51.0	D	28.5	C	50.1	D			1390	190	680	150	**145**	**200**	240	156	**265**
		WB	100	75	170	345	56.0	E	40.1	D	24.6	C	38.1	D			1324	62	179	50	**71**	**122**	150	65	**174**
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	105.5	F	77.2	E	71.7	E	79.8	E	62.3	E	652	**519**	**652**	240	**295**	**370**	652		
		SB	290	1365	150	1,805	113.8	F	27.3	C	28.4	C	40.3	D			1396	259	380	220	156	**318**	0		
		EB	590	520	125	1,235	74.0	E	55.7	E	14.6	B	60.0	E			746	197	309	290	**284**	**403**	600	55	115
		WB	220	450	325	995	54.3	D	90.6	F	32.9	C	62.7	E			2489	246	422	190	120	**289**	210	152	**306**
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	39.5	D	47.6	D	20.8	C	42.3	D	33.5	C	1231	320	513	310	78	**261**	235	97	**235**
		SB	120	300	140	560	63.6	E	32.5	C	11.5	B	33.7	C			2090	153	282	150	97	**174**	150	54	**164**
		EB	290	615	80	985	41.8	D	25.3	C	12.7	B	29.2	C			2489	116	211	395	155	258	345	25	72
		WB	90	740	120	950	21.7	C	34.3	C	20.8	C	31.3	C			738	217	326	515	40	96	105	**99**	**225**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.4	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	9.7	A	9.7	A			1000			0			1000	49	94
		EB	60	765	0	825	21.4	C	14.1	B	0.0	A	14.6	B			738	102	216	50	33	**68**	0		
		WB	0	850	50	900	0.0	A	1.0	A	0.7	A	1.0	A			162	5	54	0			0		

Table X
2040 Future Conditions
Longmont, CO

Displaced Left Turn Interchange Design

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	65.5	E	46.2	D	10.1	B	48.0	D	29.3	C	0			0			260		
	DLT Interchange	SB	250	970	780	2,000	34.8	C	28.6	C	22.0	C	26.8	C			0			0			0		
	SUM OF ALL DELAYS	EB	250	470	125	845	58.2	E	6.5	A	45.8	D	27.6	C			0			0			0		
	AT INTERSECTIONS	WB	185	1150	200	1,535	81.5	F	9.9	A	25.0	C	20.5	C			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	55.8	E	0.0	A	1.6	A	33.2	C	7.4	A	628	11	36	0			85		
		SB	50	0	30	80	51.8	D	0.0	A	15.4	B	38.4	D			590	40	80	0			590	15	48
		EB	45	755	10	810	34.1	C	4.4	A	2.0	A	5.7	A			1036	24	77	845	22	56	1036		
		WB	90	1490	100	1,680	14.3	B	6.3	A	1.4	A	6.4	A			585	108	315	380	28	70	585	12	59
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.7	A	0			0			0		
		SB	20	0	30	50	45.4	E	0.0	A	12.9	B	28.5	D			580			580	22	51	50	20	50
		EB	30	785	0	815	16.1	C	1.3	A	0.0	A	1.9	A			660			120	21	42	0		
		WB	0	1650	65	1,715	0.0	A	6.9	A	2.8	A	6.8	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	83.1	F	26.1	C	10.7	B	30.3	C	38.1	D	3865	107	233	500	54	115	120	40	120
		SB	20	480	200	700	40.4	D	41.2	D	12.3	B	32.7	C			1231	248	458	220	4	25	300	80	300
		EB	80	635	90	805	66.2	E	37.8	D	5.3	A	36.5	D			1300	180	286	90	56	170	320	3	42
		WB	300	1455	45	1,800	64.6	E	39.1	D	26.7	C	42.9	D			1405	372	680	260	249	370	80	9	66
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	14.7	B	0			0			0		
		SB	525	0	110	635	42.6	D	0.0	A	31.5	C	40.7	D			0			250	172	193	50	51	75
		EB	25	730	0	755	37.5	D	9.5	A	0.0	A	10.3	B			1550	55	165	900	22	53	0		
		WB	0	1690	635	2,325	0.0	A	9.4	A	8.1	A	9.0	A			1631	77	201	0			1631	30	82
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	60.3	E	5.3	A	2.7	A	19.8	B	22.8	C	0	24	100	220	124	227	500	2	12
		SB	40	1640	240	1,920	59.7	E	17.1	B	20.8	C	18.5	B			1034	305	438	250	38	77	0		
		EB	85	30	360	475	49.2	D	50.8	D	38.3	D	41.4	D			2653	33	81	155	49	86	1000	124	216
		WB	0	65	15	80	0.0	A	61.7	E	28.2	C	55.8	E			436	58	122	436			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	3.2	A	3.2	A	3.2	A	5.2	A	1034	36	119	0			0		
		SB	45	1880	0	1,925	8.2	A	5.5	A	0.0	A	5.6	A			1063	87	256	230	22	57	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	31.5	C	0.0	A	5.0	A	23.3	C			1000			1000	31	74	1000	9	30
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	61.4	E	8.0	A	5.6	A	15.2	B	14.0	B	1063	66	160	190	68	114	0		
		SB	100	1710	125	1,935	52.2	D	7.6	A	9.1	A	9.9	A			652	80	159	275	58	105	0		
		EB	90	20	190	300	52.5	D	46.4	D	23.3	C	34.2	C			1390	21	51	150	71	165	240	76	139
		WB	25	20	40	85	52.9	D	48.6	D	4.5	A	29.7	C			1324	12	31	50	17	55	150	9	32
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	67.7	E	13.0	B	17.0	B	19.2	B	30.1	C	652	83	135	240	44	88	652		
		SB	310	1720	240	2,270	58.1	E	25.2	C	30.6	C	30.2	C			1396	362	506	220	136	196	0		
		EB	125	325	80	530	39.7	D	43.9	D	12.5	B	38.4	D			746	112	169	290	64	93	600	34	74
		WB	135	340	190	665	51.0	D	49.5	D	11.8	B	38.0	D			2489	139	202	190	77	147	210	64	125
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	45.7	D	38.3	D	8.8	A	34.9	C	22.7	C	1231	131	345	310	36	71	235	14	39
		SB	100	450	140	690	50.3	D	42.4	D	10.1	B	37.2	D			2090	295	562	150	99	175	150	77	325
		EB	140	425	150	715	26.0	C	8.0	A	9.0	A	11.5	B			2489	21	69	395	57	131	345	18	55
		WB	100	460	190	750	24.5	C	15.6	B	7.0	A	14.8	B			738	86	169	515	51	107	105	42	129
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.3	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	7.2	A	7.2	A			1000			0			1000	63	104
		EB	40	545	0	585	8.8	A	9.5	A	0.0	A	9.4	A			738	78	206	50	22	74	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.3	A	1.0	A			162	4	31	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	64.5	E	32.5	C	14.7	B	35.1	D	35.1	D	0			0			260		
	DLT Interchange	SB	360	1205	510	2,075	42.5	D	26.2	C	11.1	B	25.3	C			0			0			0		
	SUM OF ALL DELAYS	EB	850	1160	300	2,310	81.2	F	12.9	B	70.4	E	45.5	D			0			0			0		
	AT INTERSECTIONS	WB	105	710	390	1,205	98.1	F	15.4	B	44.9	D	32.2	C			0			0			0		
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	38.7	D	38.5	D	1.9	A	16.6	B	14.8	B	628	21	79	0			85	4	34
		SB	260	20	95	375	52.4	D	56.0	E	10.9	B	43.4	D			590	223	323	0			590	32	91
		EB	95	1525	25	1,645	47.4	D	11.0	B	4.7	A	13.4	B			1036	156	751	845	81	175	1036	26	366
		WB	70	1080	200	1,350	80.8	F	4.6	A	1.3	A	7.6	A			585	43	102	380	54	114	585	13	30
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.0	A	0			0			0		
		SB	50	0	50	100	72.0	F	0.0	A	14.6	B	44.4	E			580			580	54	141	50	38	75
		EB	20	1820	0	1,840	13.1	B	2.9	A	0.0	A	3.0	A			660			120	9	37	0		
		WB	0	1300	60	1,360	0.0	A	4.9	A	1.8	A	4.8	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	132.7	F	67.6	E	59.7	E	77.1	E	44.8	D	3864	389	609	500	179	300	120	52	120
		SB	35	285	150	470	162.0	F	44.7	D	13.3	B	42.5	D			1231	168	289	220	43	102	300	26	162
		EB	250	1525	95	1,870	108.8	F	30.1	C	11.3	B	40.0	D			1300	402	700	90	210	230	320	53	160
		WB	90	1100	35	1,225	79.4	E	34.7	C	20.5	C	37.5	D			1405	205	338	260	62	199	80	4	33
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	17.3	B	0			0			0		
		SB	730	0	65	795	31.7	C	0.0	A	26.5	C	31.3	C			0			250	177	199	50	19	60
		EB	50	1600	0	1,650	32.9	C	13.0	B	0.0	A	13.6	B			1550	96	184	900	37	88	0		
		WB	0	1160	850	2,010	0.0	A	12.5	B	18.6	B	15.1	B			1631	100	259	0			1631	136	376
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	63.0	E	16.0	B	8.0	A	23.3	C	40.7	D	0	194	284	220	156	219	500	12	38
		SB	175	1455	235	1,865	99.8	F	25.8	C	32.5	C	33.2	C			1034	285	442	250	171	287	0		
		EB	420	200	570	1,190	50.4	D	47.4	D	25.3	C	37.5	D			2653	133	292	155	167	287	1000	151	252
		WB	50	120	60	230	442.2	F	345.9	F	313.2	F	353.2	F			436	424	453	436	280	448	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	9.4	A	12.0	B	9.5	A	10.7	B	1034	115	201	0			0		
		SB	135	1685	0	1,820	42.2	D	4.0	A	0.0	A	6.7	A			1063	27	74	230	104	172	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	58.3	E	0.0	A	21.5	C	42.8	D			1000			1000	146	246	1000	64	137
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	36.6	D	20.1	C	23.5	C	22.7	C	26.1	C	1063	177	276	190	112	164	0		
		SB	170	1420	120	1,710	74.2	E	10.6	B	8.7	A	17.7	B			652	86	145	275	95	146	0		
		EB	175	80	300	555	90.7	F	49.3	D	30.7	C	51.9	D			1390	162	512	150	141	198	240	113	224
		WB	100	75	170	345	64.1	E	55.3	E	53.2	D	56.8	E			1324	112	379	50	63	117	150	82	157
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	95.3	F	88.7	F	99.9	F	90.3	F	70.9	E	652	595	672	240	252	370	652		
		SB	290	1365	150	1,805	79.1	E	23.6	C	21.4	C	32.2	C			1396	221	344	220	134	254	0		
		EB	590	520	125	1,235	168.8	F	62.2	E	17.6	B	106.8	F			746	599	704	290	424	472	600	60	144
		WB	220	450	325	995	55.9	E	62.7	E	37.1	D	52.8	D			2489	193	398	190	111	250	210	182	370
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	41.7	D	49.5	D	22.0	C	44.5	D	36.1	D	1231	335	624	310	128	335	235	92	235
		SB	120	300	140	560	65.9	E	31.5	C	12.8	B	33.9	C			2090	173	305	150	117	174	150	50	157
		EB	290	615	80	985	42.0	D	27.8	C	12.1	B	30.6	C			2489	127	250	395	155	315	345	24	79
		WB	90	740	120	950	27.2	C	39.3	D	24.4	C	36.6	D			738	245	344	515	51	98	105	109	225
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.3	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	9.7	A	9.7	A			1000			0			1000	48	110
		EB	60	765	0	825	32.8	D	14.9	B	0.0	A	16.2	C			738	108	231	50	41	74	0		
		WB	0	850	50	900	0.0	A	1.1	A	0.7	A	1.1	A			162	8	72	0			0		

Table X
2040 Future Conditions
Longmont, CO

Early Left-Turn Redirect

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	960	90	1,315	44.4	D	35.9	D	1.6	A	35.4	D	29.6	C	608	176	276	920	57	119	260		
		SB	250	970	780	2,000	47.6	D	43.3	D	4.4	A	29.7	C			672	152	287	180	66	**153**	672		
		EB	0	470	0	470	0.0	A	34.1	C	0.0	A	34.1	C			981	93	143	0			0		
		WB	185	1150	200	1,535	91.3	F	14.7	B	3.4	A	22.7	C			1383	120	219	215	133	**213**	1383		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	55.4	E	0.0	A	1.8	A	30.7	C	18.3	B	297	8	34	0			85		
		SB	50	0	30	80	51.2	D	0.0	A	8.6	A	33.5	C			300	40	88	0			300	20	52
		EB	45	755	10	810	40.8	D	7.5	A	2.0	A	9.2	A			1383	48	98	845	26	70	1383		
		WB	90	1490	100	1,680	6.0	A	2.6	A	0.5	A	2.7	A			584	37	176	380	12	35	584	5	24
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.8	A	0			0			0		
		SB	20	0	30	50	41.1	E	0.0	A	20.4	C	30.8	D			580			580	26	77	50	19	**58**
		EB	30	785	0	815	24.6	C	2.0	A	0.0	A	2.7	A			660			120	13	36	0		
		WB	0	1650	65	1,715	0.0	A	8.1	A	4.3	A	7.9	A			1400			0			1400	1	18
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	133.5	F	27.3	C	10.5	B	37.0	D	45.9	D	3865	135	273	500	71	154	120	38	**145**
		SB	20	480	200	700	46.1	D	37.9	D	9.5	A	29.6	C			1231	193	319	220	18	**174**	300	29	**256**
		EB	80	635	90	805	43.3	D	26.6	C	4.5	A	25.5	C			1302	127	234	90	43	**134**	320	6	91
		WB	300	1455	45	1,800	74.1	E	62.1	E	46.6	D	63.7	E			1405	569	757	260	**311**	**370**	80	7	**98**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	17.5	B	0			0			0		
		SB	525	0	110	635	47.8	D	0.0	A	36.1	D	45.7	D			0			250	168	181	50	**44**	**75**
		EB	25	730	0	755	26.3	C	9.5	A	0.0	A	10.1	B			1550	49	118	900	27	71	0		
		WB	0	1690	635	2,325	0.0	A	14.6	B	7.5	A	12.7	B			1631	153	330	0			1631	30	105
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	67.0	E	7.1	A	6.2	A	24.4	C	49.0	D	672	15	65	220	126	**168**	0		
		SB	40	1640	240	1,920	66.9	E	63.2	E	98.4	F	68.0	E			1035	**903**	**996**	250	48	118	0		
		EB	85	30	360	475	46.2	D	45.1	D	28.5	C	32.7	C			2641	16	59	155	39	79	1000	111	218
		WB	0	65	15	80	0.0	A	55.8	E	31.6	C	52.3	D			449	61	114	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	1.7	A	2.2	A	1.7	A	28.5	C	1035	8	44	0			0		
		SB	45	1880	0	1,925	13.7	B	41.4	D	0.0	A	40.7	D			1060	553	778	230	25	72	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	47.9	D	0.0	A	6.0	A	40.9	D			1000			1000	42	86	1000	7	31
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	51.3	D	9.2	A	7.5	A	14.4	B	19.2	B	1060	77	181	190	49	108	0		
		SB	100	1710	125	1,935	35.9	D	17.2	B	27.4	C	18.8	B			650	213	351	275	49	88	0		
		EB	90	20	190	300	47.8	D	38.8	D	27.6	C	33.7	C			1032	24	59	150	59	**125**	240	100	172
		WB	25	20	40	85	48.9	D	43.8	D	5.1	A	25.8	C			1138	13	38	50	18	**49**	150	9	39
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	54.7	D	16.9	B	13.1	B	19.4	B	33.0	C	650	72	146	240	38	83	650		
		SB	310	1720	240	2,270	45.7	D	32.1	C	46.5	D	35.6	D			2535	364	594	220	120	**172**	0		
		EB	125	325	80	530	52.4	D	44.9	D	21.7	C	42.9	D			734	116	194	290	66	117	600	55	130
		WB	135	340	190	665	47.1	D	38.2	D	13.6	B	32.7	C			2489	151	227	190	66	**163**	210	62	**160**
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	46.5	D	49.3	D	12.0	B	43.3	D	24.0	C	1231	170	255	310	52	114	235	27	127
		SB	100	450	140	690	32.5	C	35.8	D	9.6	A	29.9	C			2090	265	428	150	87	**175**	150	62	**320**
		EB	140	425	150	715	24.9	C	13.1	B	12.4	B	15.2	B			2489	44	101	395	55	110	345	28	84
		WB	100	460	190	750	18.8	B	20.0	C	7.0	A	16.8	B			738	114	181	515	45	101	105	45	**109**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.1	A	0			0			0		
		SB	0	0	290	290	0.0	A	0.0	A	7.1	A	7.1	A			1000			0			1000	64	104
		EB	40	545	0	585	9.5	A	8.7	A	0.0	A	8.8	A			738	48	140	50	16	**50**	0		
		WB	0	550	110	660	0.0	A	0.8	A	1.2	A	0.9	A			159	3	30	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	2040	125	2,355	62.3	E	57.4	E	6.8	A	54.7	D	59.0	E	594	**465**	**601**	920	99	361	260	146	**410**
		SB	360	1205	510	2,075	55.1	E	29.7	C	3.4	A	27.6	C			672	186	306	200	114	**212**	672		
		EB	0	1160	0	1,160	0.0	A	163.7	F	0.0	A	163.7	F			986	615	**804**	0			0		
		WB	105	710	390	1,205	195.8	F	20.1	C	10.4	B	29.2	C			1383	68	169	215	111	**184**	1383	90	335
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	35.1	D	55.2	E	2.0	A	17.9	B	16.5	B	628	26	90	0			85	2	31
		SB	260	20	95	375	50.5	D	52.1	D	9.8	A	40.5	D			591	207	356	0			591	37	74
		EB	95	1525	25	1,645	43.5	D	19.8	B	5.1	A	21.0	C			1383	130	179	845	55	124	1383	2	14
		WB	70	1080	200	1,350	33.5	C	3.3	A	1.5	A	4.5	A			585	36	115	380	33	84	585	14	40
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	10.2	B	0			0			0		
		SB	50	0	50	100	259.4	F	0.0	A	146.3	F	209.7	F			580			580	155	295	50	**41**	**74**
		EB	20	1820	0	1,840	19.8	C	3.1	A	0.0	A	3.3	A			660			120	12	29	0		
		WB	0	1300	60	1,360	0.0	A	7.2	A	2.9	A	7.0	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	70.1	E	46.7	D	32.2	C	48.9	D	50.2	D	3864	265	514	500	125	265	120	58	**145**
		SB	35	285	150	470	81.8	F	37.4	D	6.9	A	30.0	C			1231	116	196	220	18	68	300	8	44
		EB	250	1525	95	1,870	127.7	F	41.6	D	16.7	B	51.0	D			1300	443	626	90	**202**	**230**	320	107	160
		WB	90	1100	35	1,225	69.1	E	56.2	E	50.5	D	56.8	E			1405	355	481	260	86	**338**	80	13	**101**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.1	B	0			0			0		
		SB	730	0	65	795	31.5	C	0.0	A	19.3	B	30.4	C			0			250	172	**201**	50	26	**74**
		EB	50	1600	0	1,650	39.0	D	10.9	B	0.0	A	11.7	B			1550	77	124	900	35	68	0		
		WB	0	1160	850	2,010	0.0	A	11.7	B	17.4	B	14.1	B			1631	94	300	0			1631	125	299
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	135.4	F	23.3	C	26.1	C	40.7	D	61.6	E	672	155	281	220	**231**	**313**	0		
		SB	175	1455	235	1,865	310.0	F	55.1	E	59.2	E	76.0	E			1034	503	**790**	250	**349**	**419**	0		
		EB	420	200	570	1,190	50.0	D	43.2	D	30.2	C	39.5	D			2641	142	339	155	**166**	**324**	1000	240	410
		WB	50	120	60	230	416.9	F	301.8	F	275.1	F	313.9	F			449	**411**	**447**	449	220	**355**	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	9.6	A	12.6	B	9.7	A	12.0	B	1034	142	230	0			0		
		SB	135	1685	0	1,820	51.2	D	7.4	A	0.0	A	10.3	B			1063	60	158	230	107	**191**	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	53.5	D	0.0	A	22.5	C	40.5	D			1000			1000	143	252	1000	65	173
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	39.3	D	21.3	C	24.5	C	24.1	C	34.6	C	1063	212	363	190	115	**165**	0		
		SB	170	1420	120	1,710	79.5	E	12.0	B	11.0	B	18.4	B			652	102	213	275	81	141	0		
		EB	175	80	300	555	158.9	F	94.3	F	91.1	F	113.3	F			1390	435	666	150	**160**	**199**	240	152	**265**
		WB	100	75	170	345	83.0	F	58.7	E	67.8	E	69.7	E			1324	151	414	50	**65**	**122**	150	82	**163**
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	104.5	F	75.6	E	84.8	F	79.2	E	63.0	E	652	**562**	**654**	240	**224**	**370**	652		
		SB	290	1365	150	1,805	76.9	E	23.5	C	23.5	C	31.8	C			2534	226	353	220	131	**196**	0		
		EB	590	520	125	1,235	133.4	F	55.2	E	14.2	B	87.4	F			746	398	**625**	290	**372**	**469**	600	65	292
		WB	220	450	325	995	54.1	D	64.2	E	35.2	D	52.5	D			2489	191	274	190	93	**172**	210	153	**280**
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	39.7	D	44.1	D	19.6	B	40.4	D	34.3	C	1231	308	489	310	115	**334**	235	101	**260**
		SB	120	300	140	560	74.5	E	36.7	D	13.9	B	40.0	D			2090	184	438	150	**120**	**174**	150	37	99
		EB	290	615	80	985	41.3	D	27.3	C	11.2	B	30.1	C			2489	132	230	395	152	258	345	23	70
		WB	90	740	120	950	21.5	C	33.9	C	19.8	B	30.9	C			738	200	328	515	48	107	105	**104**	**223**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.0	A	0			0			0		
		SB	0	0	130	130	0.0	A	0.0	A	5.9	A	5.9	A			1000			0			1000	39	62
		EB	60	765	0	825	31.0	D	15.0	C	0.0	A	16.3	C			738	109	258	50	37	**74**	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162	1	14	0			0		

Table X
2040 Future Conditions
Longmont, CO

EB Overpass Intersection Alternatives

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	55.7	E	46.9	D	4.0	A	44.9	D	29.6	C	1263	167	308	920	81	127	260		
		SB	250	970	780	2,000	46.8	D	35.9	D	4.6	A	25.2	C			665	132	226	180	50	108	665		
		EB	250	0	125	375	67.9	E	0.0	A	4.2	A	48.6	D			0			0	54	117	0		
		WB	185	1150	200	1,535	37.8	D	20.1	C	3.1	A	20.3	C			1378	124	182	215	48	89	1378		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	40.3	D	0.0	A	1.7	A	27.4	C	15.1	B	297	9	35	0			85		
		SB	50	0	30	80	44.7	D	0.0	A	9.1	A	27.8	C			300	38	88	0			300	21	53
		EB	45	755	10	810	26.6	C	3.2	A	0.8	A	4.6	A			1378	32	100	845	30	64	1378		7
		WB	90	1490	100	1,680	10.4	B	1.7	A	0.5	A	2.1	A			584	16	83	380	30	84	584	3	24
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.7	A	0			0			0		
		SB	20	0	30	50	66.4	F	0.0	A	11.3	B	28.1	D			580			580	17	52	50	24	66
		EB	30	785	0	815	16.2	C	1.3	A	0.0	A	1.9	A			660			120	14	37	0		
		WB	0	1650	65	1,715	0.0	A	7.0	A	2.9	A	6.8	A			1400			0			1400	1	8
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	94.7	F	33.7	C	12.3	B	38.6	D	45.8	D	3865	148	257	500	69	162	120	59	145
		SB	20	480	200	700	43.8	D	45.9	D	12.6	B	36.2	D			1231	308	532	220	52	244	300	133	325
		EB	80	635	90	805	61.6	E	34.1	C	6.3	A	33.7	C			1302	177	277	90	55	139	320	17	135
		WB	300	1455	45	1,800	60.4	E	55.7	E	47.0	D	56.2	E			1405	508	653	260	276	370	80	2	34
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	18.2	B	0			0			0		
		SB	525	0	110	635	51.7	D	0.0	A	40.8	D	49.8	D			0			250	168	194	50	56	75
		EB	25	730	0	755	26.1	C	13.9	B	0.0	A	14.2	B			1550	86	161	900	20	66	0		
		WB	0	1690	635	2,325	0.0	A	12.0	B	8.2	A	11.0	B			1631	105	226	0			1631	31	77
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	64.9	E	6.0	A	4.8	A	22.3	C	36.0	D	665	13	30	220	115	204	0		
		SB	40	1640	240	1,920	48.5	D	41.6	D	75.9	E	45.7	D			1035	731	950	250	37	82	0		
		EB	85	30	360	475	41.2	D	30.2	C	25.5	C	28.6	C			2641	13	46	155	34	71	1000	108	212
		WB	0	65	15	80	0.0	A	50.0	D	31.7	C	46.8	D			449	60	128	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	2.0	A	2.1	A	2.0	A	6.8	A	1035	12	59	0			0		
		SB	45	1880	0	1,925	14.3	B	7.8	A	0.0	A	8.0	A			1060	103	264	230	26	60	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	62.4	E	0.0	A	6.3	A	46.7	D			1000			1000	38	107	1000	13	38
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	52.5	D	6.8	A	5.8	A	13.1	B	14.6	B	1060	61	146	190	53	92	0		
		SB	100	1710	125	1,935	43.4	D	9.4	A	12.9	B	11.5	B			650	135	263	275	53	97	0		
		EB	90	20	190	300	48.5	D	39.4	D	28.4	C	34.8	C			1032	14	45	150	69	146	240	107	203
		WB	25	20	40	85	47.2	D	43.7	D	5.2	A	27.9	C			1138	10	43	50	18	46	150	8	35
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	55.9	E	13.4	B	9.4	A	16.0	B	28.2	C	650	66	133	240	28	60	650		
		SB	310	1720	240	2,270	47.8	D	20.1	C	24.8	C	24.7	C			2534	238	430	220	137	221	0		
		EB	125	325	80	530	74.1	E	37.4	D	19.4	B	42.8	D			734	91	158	290	72	103	600	46	94
		WB	135	340	190	665	48.1	D	55.2	E	13.9	B	41.8	D			2489	132	189	190	72	116	210	75	162
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	35.3	D	22.1	C	9.2	A	22.0	C	23.9	C	1231	144	251	310	39	92	235	27	114
		SB	100	450	140	690	40.0	D	33.8	C	8.3	A	29.6	C			2090	243	419	150	78	175	150	49	237
		EB	140	425	150	715	31.8	C	30.5	C	23.1	C	29.1	C			2489	126	204	395	81	152	345	74	120
		WB	100	460	190	750	18.7	B	16.7	B	9.5	A	15.3	B			738	93	168	515	39	70	105	53	105
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.3	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	8.4	A	8.4	A			1000			0			1000	67	120
		EB	40	545	0	585	12.5	B	13.8	B	0.0	A	13.7	B			738	91	190	50	22	74	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.3	A	1.0	A			159	3	24	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	75.0	E	50.0	D	6.0	A	49.7	D	71.3	E	1264	233	340	920	76	134	260		
		SB	360	1205	510	2,075	64.3	E	36.9	D	3.4	A	33.5	C			665	182	382	200	116	203	665		
		EB	850	0	300	1,150	301.2	F	0.0	A	6.8	A	213.2	F			0			0	696	907	0	20	153
		WB	105	710	390	1,205	47.1	D	59.4	E	26.1	C	48.0	D			1378	168	229	215	15	51	1378	258	446
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	40.6	D	31.3	C	2.2	A	18.0	B	12.5	B	628	27	83	0			85	2	35
		SB	260	20	95	375	50.4	D	47.5	D	9.9	A	38.8	D			591	202	341	0			591	44	75
		EB	95	1525	25	1,645	45.6	D	9.8	A	2.3	A	11.5	B			1378	140	235	845	63	125	1378	6	30
		WB	70	1080	200	1,350	56.1	E	3.8	A	1.7	A	6.1	A			585	52	125	380	55	128	585	13	51
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.4	A	0			0			0		
		SB	50	0	50	100	62.0	F	0.0	A	16.7	C	40.2	E			580			580	58	139	50	37	74
		EB	20	1820	0	1,840	14.4	B	3.5	A	0.0	A	3.6	A			660			120	11	57	0		
		WB	0	1300	60	1,360	0.0	A	7.6	A	3.3	A	7.4	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	78.3	E	49.5	D	36.1	D	52.5	D	46.8	D	3864	266	448	500	107	273	120	77	145
		SB	35	285	150	470	143.8	F	61.1	E	10.9	B	48.7	D			1231	186	314	220	51	242	300	30	234
		EB	250	1525	95	1,870	102.3	F	30.3	C	8.4	A	39.0	D			1300	415	631	90	197	230	320	43	320
		WB	90	1100	35	1,225	63.9	E	53.8	D	46.0	D	54.3	D			1405	351	597	260	67	244	80	7	69
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.1	B	0			0			0		
		SB	730	0	65	795	25.2	C	0.0	A	16.3	B	24.6	C			0			250	178	205	50	18	75
		EB	50	1600	0	1,650	41.4	D	12.3	B	0.0	A	13.2	B			1550	90	150	900	41	110	0		
		WB	0	1160	850	2,010	0.0	A	12.9	B	18.3	B	15.2	B			1631	114	261	0			1631	151	312
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	78.6	E	21.7	C	20.5	C	31.0	C	45.2	D	665	141	212	220	161	231	0		
		SB	175	1455	235	1,865	142.5	F	27.0	C	29.5	C	38.1	D			1034	277	436	250	249	352	0		
		EB	420	200	570	1,190	57.2	E	43.7	D	30.1	C	41.7	D			2641	158	395	155	167	280	1000	239	348
		WB	50	120	60	230	632.0	F	295.5	F	265.8	F	341.5	F			449	390	470	449	342	463	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	9.9	A	12.8	B	10.0	B	10.9	B	1034	137	245	0			0		
		SB	135	1685	0	1,820	41.3	D	3.9	A	0.0	A	6.8	A			1063	30	139	230	111	189	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	53.5	D	0.0	A	22.6	C	40.2	D			1000			1000	151	295	1000	73	139
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	38.7	D	15.3	B	16.3	B	18.9	B	21.9	C	1063	153	243	190	128	209	0		
		SB	170	1420	120	1,710	83.3	F	10.6	B	10.4	B	17.6	B			652	92	176	275	81	119	0		
		EB	175	80	300	555	66.0	E	46.8	D	20.2	C	38.5	D			1390	90	182	150	141	193	240	121	249
		WB	100	75	170	345	55.8	E	44.6	D	25.8	C	39.0	D			1324	57	143	50	66	116	150	79	155
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	82.0	F	56.4	E	63.0	E	59.8	E	61.4	E	652	423	539	240	202	370	652		
		SB	290	1365	150	1,805	69.1	E	23.3	C	22.6	C	29.7	C			2534	207	334	220	114	198	0		
		EB	590	520	125	1,235	174.5	F	63.6	E	22.0	C	109.4	F			746	559	824	290	449	490	600	70	125
		WB	220	450	325	995	71.3	E	78.2	E	40.8	D	63.5	E			2489	183	282	190	84	152	210	161	254
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	41.6	D	37.2	D	13.8	B	34.4	C	36.6	D	1231	171	281	310	58	186	235	27	136
		SB	120	300	140	560	81.8	F	37.4	D	13.1	B	41.8	D			2090	213	433	150	108	174	150	49	159
		EB	290	615	80	985	42.9	D	33.4	C	13.6	B	34.5	C			2489	174	263	395	175	299	345	26	63
		WB	90	740	120	950	28.9	C	40.5	D	22.5	C	37.2	D			738	230	388	515	46	119	105	110	225
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.2	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	9.7	A	9.7	A			1000			0			1000	47	96
		EB	60	765	0	825	30.5	D	15.4	C	0.0	A	16.4	C			738	151	305	50	37	66	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162		7	0			0		

Table X
2040 Future Conditions
Longmont, CO

Westbound Overpass Alternatives

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	56.4	E	48.8	D	2.3	A	46.1	D	26.1	C	1211	123	208	920	70	122	260		
		SB	250	970	780	2,000	43.2	D	34.6	C	24.6	C	31.8	C			712	137	220	180	74	182	712	152	290
		EB	250	470	125	845	19.4	B	29.0	C	3.7	A	21.9	C			1484	90	139	430	23	59	0		
		WB	185	0	200	385	38.5	D	0.7	A	3.9	A	5.7	A			0			0	62	116	0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	53.7	D	0.0	A	1.5	A	31.3	C	7.7	A	302	11	36	0			85		
		SB	50	0	30	80	49.6	D	0.0	A	5.8	A	33.8	C			304	33	75	0			304	13	33
		EB	45	755	10	810	21.1	C	8.5	A	3.7	A	9.2	A			1403	56	110	845	26	58	1403		7
		WB	90	1490	100	1,680	10.2	B	1.8	A	0.5	A	2.2	A			585	16	96	380	21	69	585	3	25
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.1	A	0			0			0		
		SB	20	0	30	50	62.1	F	0.0	A	15.2	C	34.7	D			580			580	22	66	50	25	45
		EB	30	785	0	815	22.6	C	2.1	A	0.0	A	2.7	A			660			120	14	45	0		
		WB	0	1650	65	1,715	0.0	A	7.1	A	2.8	A	6.9	A			1400			0			1400	1	8
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	105.9	F	33.3	C	12.0	B	37.7	D	39.9	D	3865	131	300	500	56	119	120	28	143
		SB	20	480	200	700	40.8	D	40.5	D	10.9	B	31.8	C			1231	275	438	220	20	167	300	84	325
		EB	80	635	90	805	53.4	D	29.6	C	4.3	A	28.9	C			1302	157	272	90	51	149	0		
		WB	300	1455	45	1,800	58.6	E	46.3	D	39.2	D	48.2	D			1405	442	692	260	274	370	80	7	99
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	17.2	B	0			0			0		
		SB	525	0	110	635	47.2	D	0.0	A	35.6	D	45.1	D			0			250	161	196	50	55	75
		EB	25	730	0	755	25.3	C	14.5	B	0.0	A	14.9	B			1550	98	167	900	21	53	0		
		WB	0	1690	635	2,325	0.0	A	11.5	B	8.4	A	10.7	B			1631	117	486	0			1631	31	69
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	55.2	E	7.5	A	6.8	A	21.4	C	36.5	D	712	33	132	220	123	221	0		
		SB	40	1640	240	1,920	71.2	E	43.0	D	75.9	E	47.4	D			1035	747	941	250	40	90	0		
		EB	85	30	360	475	44.0	D	41.4	D	23.4	C	28.1	C			2641	22	67	155	33	72	1000	96	213
		WB	0	65	15	80	0.0	A	57.6	E	30.9	C	51.4	D			449	63	121	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	2.2	A	2.5	A	2.2	A	8.5	A	1035	8	65	0			0		
		SB	45	1880	0	1,925	9.3	A	10.7	B	0.0	A	10.7	B			1060	141	338	230	17	52	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	58.0	E	0.0	A	6.1	A	45.6	D			1000			1000	34	66	1000	8	31
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	59.3	E	8.3	A	8.2	A	14.7	B	14.5	B	1060	80	172	190	52	99	0		
		SB	100	1710	125	1,935	40.2	D	9.7	A	13.0	B	11.2	B			650	129	219	275	45	83	0		
		EB	90	20	190	300	47.9	D	49.0	D	24.0	C	33.4	C			1032	23	73	150	74	136	240	87	158
		WB	25	20	40	85	46.1	D	42.3	D	5.5	A	25.7	C			1138	12	42	50	14	48	150	8	24
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	59.2	E	14.8	B	9.8	A	18.7	B	31.7	C	650	81	154	240	41	74	650		
		SB	310	1720	240	2,270	45.4	D	26.2	C	39.5	D	30.2	C			2534	356	630	220	121	189	0		
		EB	125	325	80	530	75.3	E	37.5	D	15.0	B	44.5	D			734	84	130	290	76	113	600	35	79
		WB	135	340	190	665	48.5	D	57.4	E	13.5	B	43.9	D			2489	131	208	190	75	117	210	70	148
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	30.8	C	22.1	C	8.6	A	21.5	C	24.6	C	1231	125	221	310	35	62	235	12	48
		SB	100	450	140	690	37.7	D	35.8	D	9.0	A	31.0	C			2090	250	437	150	92	175	150	65	325
		EB	140	425	150	715	33.2	C	32.8	C	21.2	C	30.6	C			2489	123	186	395	79	145	345	63	137
		WB	100	460	190	750	18.8	B	17.3	B	8.2	A	15.3	B			738	88	137	515	41	115	105	49	116
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.7	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	8.0	A	8.0	A			1000			0			1000	71	134
		EB	40	545	0	585	11.3	B	9.7	A	0.0	A	9.8	A			738	70	194	50	16	66	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.2	A	1.0	A			159	3	24	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	67.1	E	53.0	D	4.7	A	50.1	D	35.4	D	1210	188	304	920	68	117	260	2	18
		SB	360	1205	510	2,075	50.7	D	35.8	D	10.7	B	32.3	C			712	207	418	200	124	290	712	39	118
		EB	850	1160	300	2,310	31.2	C	52.4	D	6.6	A	38.3	D			689	284	376	430	123	208	250	48	239
		WB	105	0	390	495	50.2	D	0.8	A	34.4	C	14.9	B			0			0	37	89	0	240	432
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	39.2	D	45.5	D	1.9	A	19.2	B	17.2	B	634	23	71	0			85		
		SB	260	20	95	375	54.1	D	62.8	E	7.5	A	44.4	D			596	215	325	0			596	24	64
		EB	95	1525	25	1,645	36.2	D	19.4	B	4.6	A	20.2	C			1403	124	244	845	54	114	1403		
		WB	70	1080	200	1,350	44.1	D	3.2	A	1.5	A	5.2	A			586	38	76	380	40	97	586	13	28
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.1	A	0			0			0		
		SB	50	0	50	100	130.3	F	0.0	A	39.3	E	83.0	F			580			580	84	172	50	41	75
		EB	20	1820	0	1,840	12.7	B	3.0	A	0.0	A	3.1	A			660			120	12	44	0		
		WB	0	1300	60	1,360	0.0	A	7.1	A	3.2	A	6.9	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	113.1	F	79.5	E	64.5	E	82.0	F	42.5	D	3864	446	750	500	166	324	120	64	145
		SB	35	285	150	470	235.4	F	60.2	E	8.1	A	55.1	E			1231	178	246	220	59	154	300	9	48
		EB	250	1525	95	1,870	82.6	F	23.6	C	6.9	A	30.6	C			1300	298	486	90	194	230	0		
		WB	90	1100	35	1,225	63.2	E	35.5	D	32.4	C	37.5	D			1405	227	348	260	51	124	80	2	34
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.1	B	0			0			0		
		SB	730	0	65	795	23.6	C	0.0	A	13.0	B	22.7	C			0			250	182	199	50	19	75
		EB	50	1600	0	1,650	41.0	D	13.1	B	0.0	A	14.0	B			1550	99	184	900	45	87	0		
		WB	0	1160	850	2,010	0.0	A	13.5	B	17.9	B	15.4	B			1631	128	350	0			1631	135	335
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	72.2	E	26.2	C	30.1	C	34.0	C	50.9	D	712	248	421	220	170	246	0		
		SB	175	1455	235	1,865	126.4	F	30.3	C	40.7	D	40.2	D			1034	357	568	250	224	334	0		
		EB	420	200	570	1,190	51.2	D	41.1	D	31.5	C	39.7	D			2641	121	234	155	148	230	1000	247	384
		WB	50	120	60	230	762.2	F	461.0	F	401.8	F	491.4	F			923	619	752	923	411	556	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	11.0	B	11.5	B	11.0	B	11.9	B	1034	137	272	0			0		
		SB	135	1685	0	1,820	50.4	D	4.7	A	0.0	A	8.3	A			1063	43	162	230	127	226	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	55.2	E	0.0	A	23.9	C	41.9	D			1000			1000	144	235	1000	69	138
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	42.8	D	26.4	C	35.2	D	29.5	C	27.6	C	1063	239	532	190	135	239	0		
		SB	170	1420	120	1,710	80.2	F	10.5	B	8.8	A	17.1	B			652	90	157	275	79	126	0		
		EB	175	80	300	555	82.2	F	43.7	D	27.1	C	45.9	D			1390	137	406	150	148	192	240	161	265
		WB	100	75	170	345	53.9	D	45.9	D	29.8	C	40.2	D			1324	58	169	50	62	110	150	75	161
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	89.7	F	74.9	E	83.1	F	77.1	E	65.2	E	652	527	641	240	240	370	652		
		SB	290	1365	150	1,805	78.1	E	23.1	C	21.7	C	31.5	C			2534	206	362	220	142	261	0		
		EB	590	520	125	1,235	147.2	F	60.5	E	20.4	C	98.3	F			746	401	653	290	391	484	600	59	136
		WB	220	450	325	995	70.8	E	78.8	E	33.9	C	62.3	E			2489	186	297	190	94	176	210	126	262
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	44.0	D	40.4	D	14.7	B	37.4	D	37.8	D	1231	190	273	310	71	188	235	38	191
		SB	120	300	140	560	85.5	F	37.6	D	11.4	B	42.7	D			2090	190	342	150	122	174	150	36	72
		EB	290	615	80	985	50.4	D	31.5	C	10.2	B	34.9	C			2489	157	229	395	174	320	345	21	42
		WB	90	740	120	950	28.1	C	41.8	D	23.3	C	38.4	D			738	231	384	515	49	97	105	98	225
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.5	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	7.1	A	7.1	A			1000			0			1000	45	94
		EB	60	765	0	825	30.5	D	13.7	B	0.0	A	15.0	C			738	130	239	50	45	75	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162	2	17	0			0		

Table X
2040 Future Conditions
Longmont, CO

SPUI INTERSECTION ALTERNATIVE

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	51.0	D	27.8	C	2.9	A	30.8	C	18.0	B	1238	105	217	920	65	131	260		
		SB	250	970	780	2,000	50.0	D	23.1	C	6.5	A	20.0	C			712	111	173	180	63	102	712	22	95
		EB	250	0	125	375	34.2	C	0.0	A	8.3	A	25.0	C			0			350	63	109	0	**42**	**93**
		WB	185	0	200	385	30.5	C	0.7	A	3.9	A	4.6	A			0			0	**48**	**107**	0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	40.2	D	0.0	A	1.3	A	29.1	C	5.2	A	302	14	57	0			85		
		SB	50	0	30	80	45.9	D	0.0	A	6.8	A	31.0	C			304	39	95	0			304	14	35
		EB	45	755	10	810	24.1	C	2.5	A	0.7	A	3.9	A			1406	26	70	845	30	70	1406	1	7
		WB	90	1490	100	1,680	11.5	B	1.9	A	0.5	A	2.4	A			585	20	94	380	25	57	585	4	23
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.8	A	0			0			0		
		SB	20	0	30	50	61.8	**F**	0.0	A	13.6	B	28.9	D			580			580	16	66	50	23	**72**
		EB	30	785	0	815	22.6	C	1.2	A	0.0	A	1.9	A			660			120	15	40	0		
		WB	0	1650	65	1,715	0.0	A	7.3	A	3.5	A	7.1	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	65.6	**E**	30.5	C	8.4	A	28.6	C	41.0	D	3865	118	260	500	35	89	120	25	**145**
		SB	20	480	200	700	54.2	D	46.3	D	11.8	B	35.5	D			1231	294	571	220	10	96	300	80	**325**
		EB	80	635	90	805	52.1	D	29.4	C	4.6	A	28.9	C			1302	167	288	90	54	**170**	320	5	41
		WB	300	1455	45	1,800	56.2	**E**	50.1	D	43.3	D	50.9	D			1405	469	758	260	**250**	**370**	80	4	32
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.8	B	0			0			0		
		SB	525	0	110	635	47.5	D	0.0	A	29.3	C	44.4	D			0			250	167	**200**	50	**46**	**75**
		EB	25	730	0	755	29.3	C	12.4	B	0.0	A	13.0	B			1550	79	168	900	25	61	0		
		WB	0	1690	635	2,325	0.0	A	12.2	B	8.6	A	11.2	B			1631	145	699	0			1631	36	122
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	58.8	**E**	7.5	A	7.1	A	22.7	C	32.2	C	712	37	216	220	123	**201**	0		
		SB	40	1640	240	1,920	54.6	D	33.3	C	61.5	**E**	37.1	D			1035	615	**935**	250	39	91	0		
		EB	85	30	360	475	47.6	D	41.1	D	28.2	C	32.4	C			2641	22	74	155	40	79	1000	108	179
		WB	0	65	15	80	0.0	A	58.7	**E**	24.3	C	49.9	D			449	62	126	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	2.1	A	2.5	A	2.1	A	4.2	A	1035	5	36	0			0		
		SB	45	1880	0	1,925	10.5	B	3.9	A	0.0	A	4.0	A			1060	22	140	230	23	59	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	60.6	**E**	0.0	A	10.1	B	45.6	D			1000			1000	36	87	1000	14	45
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	39.9	D	13.2	B	13.2	B	16.9	B	14.7	B	1060	126	231	190	54	96	0		
		SB	100	1710	125	1,935	40.7	D	8.7	A	10.9	B	10.6	B			650	129	207	275	55	88	0		
		EB	90	20	190	300	50.3	D	40.7	D	23.6	C	32.9	C			1032	14	44	150	71	**122**	240	90	**189**
		WB	25	20	40	85	51.3	D	48.7	D	6.2	A	27.6	C			1138	10	50	50	14	**39**	150	9	32
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	62.0	**E**	15.8	B	8.5	A	18.7	B	29.7	C	650	67	127	240	28	72	650		
		SB	310	1720	240	2,270	43.6	D	22.0	C	30.9	C	25.8	C			2534	269	452	220	125	**216**	0		
		EB	125	325	80	530	70.8	**E**	40.6	D	17.4	B	44.9	D			734	93	164	290	76	116	600	38	86
		WB	135	340	190	665	51.8	D	58.3	**E**	11.7	B	44.1	D			2489	141	203	190	76	124	210	62	127
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	28.3	C	23.3	C	8.4	A	21.6	C	23.3	C	1231	131	227	310	31	76	235	18	114
		SB	100	450	140	690	40.4	D	35.0	D	11.5	B	30.6	C			2090	234	429	150	80	**174**	150	68	**324**
		EB	140	425	150	715	28.8	C	30.1	C	21.2	C	28.0	C			2489	119	188	395	84	152	345	66	131
		WB	100	460	190	750	20.1	C	15.6	B	8.0	A	14.5	B			738	88	170	515	48	90	105	42	**93**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.0	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	7.7	A	7.7	A			1000			0			1000	67	131
		EB	40	545	0	585	10.3	B	8.4	A	0.0	A	8.5	A			738	51	154	50	20	**74**	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.2	A	1.0	A			159	4	47	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	47.6	D	30.5	C	4.8	A	30.6	C	24.9	C	1240	157	283	920	39	80	260		3
		SB	360	1205	510	2,075	42.0	D	24.7	C	5.6	A	23.0	C			712	155	288	200	89	**161**	712	14	65
		EB	850	0	300	1,150	45.4	D	0.0	A	13.4	B	37.2	D			0			500	237	343	0	**92**	**173**
		WB	105	0	390	495	30.1	C	0.8	A	20.1	C	9.4	A			0			0	**30**	**85**	0	**176**	**393**
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	52.8	D	42.2	D	1.9	A	19.4	B	13.2	B	634	24	64	0			85	2	33
		SB	260	20	95	375	56.8	**E**	54.8	D	8.7	A	42.2	D			596	198	348	0			596	34	64
		EB	95	1525	25	1,645	43.3	D	11.5	B	1.2	A	13.2	B			1405	184	322	845	59	139	1405	6	31
		WB	70	1080	200	1,350	46.8	D	3.6	A	1.4	A	5.3	A			586	53	111	380	42	122	586	19	44
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.5	A	0			0			0		
		SB	50	0	50	100	61.5	**F**	0.0	A	17.1	C	36.9	**E**			580			580	44	116	50	34	**74**
		EB	20	1820	0	1,840	23.4	C	4.2	A	0.0	A	4.4	A			660			120	11	37	0		
		WB	0	1300	60	1,360	0.0	A	7.3	A	3.1	A	7.1	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	153.1	**F**	65.7	**E**	50.5	D	77.4	**E**	44.3	D	3864	371	526	500	162	324	120	87	**145**
		SB	35	285	150	470	153.6	**F**	61.7	**E**	14.2	B	53.5	D			1231	210	425	220	58	**243**	300	62	**323**
		EB	250	1525	95	1,870	82.8	**F**	29.6	C	7.8	A	34.8	C			1300	399	553	90	**189**	**230**	320	53	**480**
		WB	90	1100	35	1,225	70.8	**E**	35.8	D	25.8	C	37.8	D			1405	232	379	260	46	131	80	11	**103**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	15.6	B	0			0			0		
		SB	730	0	65	795	24.6	C	0.0	A	15.7	B	23.9	C			0			250	181	**205**	50	18	**75**
		EB	50	1600	0	1,650	41.3	D	12.9	B	0.0	A	13.8	B			1550	94	151	900	43	96	0		
		WB	0	1160	850	2,010	0.0	A	12.2	B	15.8	B	13.7	B			1631	98	268	0			1631	119	309
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	79.0	**E**	34.3	C	37.4	D	42.0	D	49.9	D	712	342	496	220	**191**	**362**	0		
		SB	175	1455	235	1,865	111.6	**F**	28.5	C	32.6	C	37.7	D			1034	297	494	250	**216**	**357**	0		
		EB	420	200	570	1,190	54.0	D	41.8	D	27.4	C	39.6	D			2641	136	259	155	**166**	**270**	1000	210	334
		WB	50	120	60	230	535.9	**F**	358.2	**F**	364.5	**F**	389.0	**F**			449	**433**	**475**	449	**342**	**462**	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	11.8	B	14.8	B	12.0	B	11.9	B	1034	142	243	0			0		
		SB	135	1685	0	1,820	40.2	D	4.2	A	0.0	A	6.6	A			1063	25	138	230	92	**181**	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	53.0	D	0.0	A	26.7	C	41.4	D			1000			1000	131	217	1000	75	146
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	39.7	D	21.7	C	25.7	C	24.7	C	31.8	C	1063	211	353	190	119	**172**	0		
		SB	170	1420	120	1,710	86.2	**F**	11.0	B	10.3	B	18.3	B			652	95	214	275	82	126	0		
		EB	175	80	300	555	141.8	**F**	73.9	**E**	67.6	**E**	92.8	**F**			1390	315	722	150	**151**	**198**	240	130	**241**
		WB	100	75	170	345	53.9	D	55.9	**E**	56.7	**E**	55.8	**E**			1324	122	346	50	**47**	**87**	150	96	**160**
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	82.5	**F**	78.2	**E**	88.1	**F**	79.3	**E**	67.3	**E**	652	**546**	**677**	240	**215**	**370**	652		
		SB	290	1365	150	1,805	81.8	**F**	24.6	C	23.1	C	33.9	C			2534	210	322	220	133	**247**	0		
		EB	590	520	125	1,235	151.5	**F**	59.4	**E**	19.3	B	97.9	**F**			746	512	**752**	290	**420**	**490**	600	67	138
		WB	220	450	325	995	71.9	**E**	73.4	**E**	36.8	D	61.0	**E**			2489	165	238	190	102	**163**	210	140	**286**
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	42.4	D	42.2	D	14.2	B	38.9	D	35.9	D	1231	196	373	310	60	186	235	39	**260**
		SB	120	300	140	560	68.7	**E**	41.5	D	16.2	B	40.8	D			2090	219	432	150	93	**167**	150	62	**252**
		EB	290	615	80	985	41.5	D	31.5	C	13.0	B	32.7	C			2489	177	262	395	165	283	345	25	65
		WB	90	740	120	950	26.9	C	37.0	D	21.3	C	34.3	C			738	217	402	515	53	112	105	78	**225**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.8	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	8.4	A	8.4	A			1000			0			1000	52	86
		EB	60	765	0	825	31.4	D	16.1	C	0.0	A	17.3	C			738	146	268	50	**41**	**74**	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162	1	14	0			0		

Table X
2040 Future Conditions
Longmont, CO

KP/Sunset_Shared NBTR Lane

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	45.8	D	25.6	C	2.7	A	28.4	C	17.4	B	1238	82	168	920	63	113	260		
		SB	250	970	780	2,000	50.6	D	21.6	C	7.1	A	19.7	B			712	111	206	180	69	126	712	39	124
		EB	250	0	125	375	34.0	C	0.0	A	6.0	A	24.4	C			0			350	63	136	0	**34**	**76**
		WB	185	0	200	385	33.1	C	0.7	A	3.8	A	5.2	A			0			0	**61**	**106**	0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	44.1	D	0.0	A	1.5	A	21.2	C	5.7	A	302	8	40	0			85		
		SB	50	0	30	80	46.4	D	0.0	A	8.3	A	33.7	C			304	38	88	0			304	13	36
		EB	45	755	10	810	26.9	C	2.9	A	0.1	A	4.1	A			1406	27	90	845	31	77	1406		
		WB	90	1490	100	1,680	8.9	A	1.8	A	0.5	A	2.0	A			585	23	101	380	20	72	585	2	16
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.0	A	0			0			0		
		SB	20	0	30	50	46.5	E	0.0	A	15.2	C	26.9	D			580			580	15	44	50	23	**60**
		EB	30	785	0	815	12.1	B	1.4	A	0.0	A	1.8	A			660			120	15	45	0		
		WB	0	1650	65	1,715	0.0	A	7.6	A	3.3	A	7.4	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	78.8	E	30.5	C	22.5	C	36.0	D	44.2	D	3866	155	250	500	49	141	0		
		SB	20	480	200	700	43.4	D	39.1	D	9.7	A	30.4	C			1231	274	405	220	28	**167**	300	74	**233**
		EB	80	635	90	805	68.7	E	33.0	C	5.1	A	33.2	C			1302	187	276	90	65	**191**	320	7	75
		WB	300	1455	45	1,800	61.5	E	54.9	D	52.0	D	55.9	E			1404	501	692	260	**283**	**370**	80	2	32
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	15.6	B	0			0			0		
		SB	525	0	110	635	41.0	D	0.0	A	29.1	C	38.6	D			0			250	153	**200**	50	**56**	**75**
		EB	25	730	0	755	27.0	C	13.8	B	0.0	A	14.3	B			1550	88	173	900	21	66	0		
		WB	0	1690	635	2,325	0.0	A	11.2	B	8.4	A	10.4	B			1631	103	232	0			1631	29	90
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	51.5	D	8.2	A	5.8	A	20.8	C	38.1	D	712	38	134	220	111	**202**	0		
		SB	40	1640	240	1,920	56.0	E	44.6	D	86.8	F	50.2	D			1035	**817**	**1046**	250	30	77	0		
		EB	85	30	360	475	43.2	D	31.2	C	27.3	C	30.2	C			2641	25	69	155	34	65	1000	111	192
		WB	0	65	15	80	0.0	A	47.1	D	20.0	C	43.3	D			449	55	103	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	2.5	A	2.5	A	2.5	A	9.5	A	1035	7	47	0			0		
		SB	45	1880	0	1,925	11.5	B	11.8	B	0.0	A	11.8	B			1060	166	475	230	21	67	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	53.5	D	0.0	A	6.1	A	38.3	D			1000			1000	36	79	1000	12	31
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	41.6	D	14.6	B	14.1	B	18.1	B	15.3	B	1060	129	228	190	49	88	0		
		SB	100	1710	125	1,935	43.9	D	9.3	A	10.8	B	11.2	B			650	124	230	275	53	104	0		
		EB	90	20	190	300	49.2	D	35.3	D	21.9	C	31.0	C			1032	21	51	150	70	**145**	240	94	176
		WB	25	20	40	85	46.1	D	49.7	D	5.8	A	26.8	C			1138	14	62	50	17	**50**	150	10	41
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	60.0	E	14.2	B	9.6	A	18.5	B	29.5	C	650	60	139	240	40	93	650		
		SB	310	1720	240	2,270	43.2	D	22.6	C	31.7	C	26.5	C			2534	265	405	220	124	**189**	0		
		EB	125	325	80	530	77.0	E	39.1	D	15.7	B	44.8	D			734	92	156	290	68	115	600	37	82
		WB	135	340	190	665	48.0	D	55.2	E	10.6	B	41.5	D			2489	126	217	190	75	116	210	62	108
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	30.7	C	21.3	C	7.8	A	20.6	C	23.6	C	1231	111	228	310	35	91	235	16	105
		SB	100	450	140	690	32.2	C	34.0	C	9.3	A	28.8	C			2090	231	393	150	56	**174**	150	53	**180**
		EB	140	425	150	715	32.2	C	32.5	C	23.2	C	30.5	C			2489	131	196	395	99	188	345	75	156
		WB	100	460	190	750	16.5	B	16.6	B	8.0	A	14.5	B			738	88	178	515	44	96	105	46	**127**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	4.6	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	7.9	A	7.9	A			1000			0			1000	69	154
		EB	40	545	0	585	11.0	B	7.1	A	0.0	A	7.3	A			738	37	142	50	23	**62**	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.3	A	1.0	A			159	4	32	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	61.8	E	48.3	D	5.5	A	46.5	D	30.8	C	1240	241	348	920	74	176	260	1	14
		SB	360	1205	510	2,075	55.3	E	29.5	C	5.4	A	28.0	C			712	217	375	200	125	**307**	712	18	75
		EB	850	0	300	1,150	44.8	D	0.0	A	15.0	B	36.3	D			0			500	239	363	0	**92**	**191**
		WB	105	0	390	495	44.3	D	0.9	A	20.5	C	11.0	B			0			0	**32**	**83**	0	**224**	**405**
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	34.8	C	43.3	D	2.3	A	17.5	B	13.9	B	634	29	72	0			85	5	50
		SB	260	20	95	375	55.5	E	51.3	D	9.4	A	43.2	D			596	226	428	0			596	34	71
		EB	95	1525	25	1,645	44.6	D	11.5	B	0.7	A	13.3	B			1405	157	252	845	61	115	1405	2	20
		WB	70	1080	200	1,350	47.8	D	3.8	A	1.2	A	5.6	A			586	44	96	380	46	118	586	14	34
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.8	A	0			0			0		
		SB	50	0	50	100	58.1	F	0.0	A	14.1	B	34.3	D			580			580	50	143	50	**39**	**76**
		EB	20	1820	0	1,840	25.1	D	4.8	A	0.0	A	5.0	A			660			120	16	50	0		
		WB	0	1300	60	1,360	0.0	A	7.2	A	3.3	A	7.1	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	254.7	F	261.9	F	246.5	F	258.1	F	72.8	E	3866	1305	1761	500	230	324	0		
		SB	35	285	150	470	615.7	F	73.0	E	27.4	C	88.0	F			1231	281	750	220	151	**240**	300	43	**324**
		EB	250	1525	95	1,870	97.9	F	34.7	C	11.4	B	41.2	D			1300	482	689	90	**201**	**230**	320	91	**480**
		WB	90	1100	35	1,225	51.0	D	38.5	D	28.3	C	39.0	D			1404	252	456	260	38	183	80	9	**68**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	15.8	B	0			0			0		
		SB	730	0	65	795	25.4	C	0.0	A	16.3	B	24.7	C			0			250	179	**204**	50	21	**74**
		EB	50	1600	0	1,650	45.8	D	13.2	B	0.0	A	14.3	B			1550	99	169	900	46	117	0		
		WB	0	1160	850	2,010	0.0	A	12.0	B	16.5	B	13.9	B			1631	98	249	0			1631	106	308
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	82.5	F	24.0	C	24.0	C	34.3	C	45.6	D	712	220	386	220	**187**	**276**	0		
		SB	175	1455	235	1,865	110.0	F	27.1	C	31.3	C	35.1	D			1034	291	417	250	**195**	**297**	0		
		EB	420	200	570	1,190	51.9	D	40.6	D	29.9	C	39.2	D			2641	128	225	155	**160**	**271**	1000	237	386
		WB	50	120	60	230	449.2	F	348.7	F	349.6	F	366.7	F			449	**426**	**470**	449	331	**464**	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	10.5	B	13.3	B	10.6	B	11.1	B	1034	122	227	0			0		
		SB	135	1685	0	1,820	39.2	D	4.1	A	0.0	A	6.7	A			1063	28	101	230	107	163	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	53.5	D	0.0	A	25.5	C	40.6	D			1000			1000	139	248	1000	74	162
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	36.7	D	17.8	B	22.1	C	20.8	C	25.1	C	1063	182	290	190	115	**190**	0		
		SB	170	1420	120	1,710	81.7	F	10.8	B	10.2	B	18.2	B			652	89	190	275	90	163	0		
		EB	175	80	300	555	101.4	F	54.6	D	34.8	C	58.6	E			1390	221	663	150	**150**	**199**	240	167	**265**
		WB	100	75	170	345	56.5	E	42.1	D	31.4	C	40.1	D			1324	70	227	50	**56**	**115**	150	74	**167**
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	89.5	F	75.4	E	83.4	F	77.5	E	61.9	E	652	**548**	**658**	240	**241**	**370**	652		
		SB	290	1365	150	1,805	70.7	E	24.5	C	21.6	C	31.1	C			2534	208	321	220	116	**188**	0		
		EB	590	520	125	1,235	114.3	F	59.5	E	19.0	B	81.1	F			746	275	525	290	**353**	**471**	600	57	110
		WB	220	450	325	995	66.9	E	75.8	E	36.2	D	60.8	E			2489	183	283	190	85	**145**	210	133	**281**
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	50.3	D	44.1	D	15.6	B	41.4	D	35.8	D	1231	201	304	310	72	216	235	37	**199**
		SB	120	300	140	560	65.4	E	37.0	D	13.8	B	37.5	D			2090	195	386	150	104	**174**	150	62	**262**
		EB	290	615	80	985	39.5	D	31.0	C	13.1	B	32.1	C			2489	159	257	395	166	277	345	25	62
		WB	90	740	120	950	26.1	C	38.7	D	18.2	B	35.1	D			738	223	366	515	48	102	105	**95**	**225**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.6	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	6.9	A	6.9	A			1000			0			1000	45	93
		EB	60	765	0	825	29.7	D	13.9	B	0.0	A	15.2	C			738	126	278	50	**45**	**73**	0		
		WB	0	850	50	900	0.0	A	1.0	A	0.7	A	1.0	A			162	3	18	0			0		

Table X
2040 Future Conditions
Longmont, CO

KP/Nelson_2 EBT Lanes

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	46.4	D	23.6	C	2.6	A	27.3	C	17.1	B	1238	94	172	920	75	142	260		2
		SB	250	970	780	2,000	51.1	D	21.0	C	7.0	A	19.2	B			712	109	193	180	66	124	712	31	94
		EB	250	0	125	375	36.1	D	0.0	A	7.2	A	26.6	C			0			350	67	128	0	37	78
		WB	185	0	200	385	29.6	C	0.8	A	3.6	A	4.5	A			0			0	44	91	0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	44.4	D	0.0	A	1.2	A	19.2	B	5.2	A	302	7	28	0			85		
		SB	50	0	30	80	46.7	D	0.0	A	7.0	A	30.1	C			304	40	103	0			304	16	35
		EB	45	755	10	810	19.8	B	3.1	A	0.5	A	4.0	A			1406	31	84	845	26	62	1406		6
		WB	90	1490	100	1,680	7.8	A	1.9	A	0.6	A	2.2	A			585	17	76	380	22	66	585	3	25
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.9	A	0			0			0		
		SB	20	0	30	50	62.5	F	0.0	A	12.6	B	27.8	D			580			580	18	87	50	22	68
		EB	30	785	0	815	16.3	C	1.4	A	0.0	A	1.9	A			660			120	14	44	0		
		WB	0	1650	65	1,715	0.0	A	7.3	A	3.1	A	7.1	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	64.6	E	28.7	C	9.5	A	29.0	C	37.8	D	3865	119	215	500	45	107	120	47	145
		SB	20	480	200	700	39.9	D	41.7	D	11.2	B	32.1	C			1231	273	424	220	27	244	300	97	325
		EB	80	635	90	805	55.8	E	30.3	C	4.4	A	29.9	C			1302	170	277	90	56	154	320	7	76
		WB	300	1455	45	1,800	54.0	D	43.8	D	35.8	D	45.3	D			1405	425	600	260	230	370	80	2	31
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.0	B	0			0			0		
		SB	525	0	110	635	44.5	D	0.0	A	28.2	C	41.6	D			0			250	163	191	50	55	75
		EB	25	730	0	755	26.3	C	12.9	B	0.0	A	13.3	B			1550	82	186	900	16	52	0		
		WB	0	1690	635	2,325	0.0	A	10.3	B	8.8	A	9.9	A			1631	87	183	0			1631	31	94
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	53.2	D	7.7	A	4.3	A	20.1	C	28.0	C	712	37	110	220	108	193	0		
		SB	40	1640	240	1,920	46.4	D	29.0	C	52.3	D	32.2	C			1035	526	872	250	30	62	0		
		EB	85	30	360	475	43.5	D	36.1	D	24.8	C	28.9	C			2641	24	62	155	36	78	1000	92	163
		WB	0	65	15	80	0.0	A	52.4	D	14.9	B	45.3	D			449	57	127	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	2.2	A	2.1	A	2.2	A	4.2	A	1035	3	36	0			0		
		SB	45	1880	0	1,925	9.5	A	3.8	A	0.0	A	3.9	A			1060	36	165	230	18	37	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	56.6	E	0.0	A	6.9	A	40.6	D			1000			1000	41	93	1000	15	45
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	40.6	D	15.0	B	6.0	A	17.6	B	15.2	B	1060	127	238	190	50	80	0		
		SB	100	1710	125	1,935	43.8	D	8.4	A	9.1	A	10.4	B			650	113	212	275	54	102	0		
		EB	90	20	190	300	52.7	D	56.1	E	22.6	C	34.0	C			1032	21	106	150	79	155	240	92	161
		WB	25	20	40	85	50.1	D	54.5	D	5.4	A	29.2	C			1138	7	31	50	17	45	150	9	25
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	54.7	D	16.7	B	4.5	A	19.0	B	35.0	D	650	98	200	240	34	67	650	15	56
		SB	310	1720	240	2,270	50.2	D	36.8	D	13.0	B	36.2	D			2535	353	662	220	143	312	1000	32	71
		EB	125	325	80	530	75.3	E	37.6	D	16.6	B	43.4	D			734	91	157	290	69	113	600	38	81
		WB	135	340	190	665	54.4	D	55.5	E	16.1	B	43.9	D			2489	121	215	190	75	125	210	79	178
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	25.1	C	22.3	C	8.8	A	20.9	C	24.4	C	1231	134	225	310	43	90	235	12	34
		SB	100	450	140	690	35.1	D	37.5	D	8.5	A	31.2	C			2090	261	407	150	91	174	150	63	231
		EB	140	425	150	715	31.2	C	32.3	C	20.2	C	29.7	C			2489	127	223	395	95	180	345	63	119
		WB	100	460	190	750	17.8	B	18.6	B	8.3	A	16.1	B			738	101	179	515	41	79	105	48	132
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.5	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	7.8	A	7.8	A			1000			0			1000	66	133
		EB	40	545	0	585	13.2	B	9.3	A	0.0	A	9.5	A			738	58	174	50	19	74	0		
		WB	0	550	110	660	0.0	A	1.0	A	1.2	A	1.0	A			159	4	26	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	68.2	E	142.7	F	34.3	C	122.0	F	55.4	E	1240	483	1076	920	188	666	260	91	410
		SB	360	1205	510	2,075	54.0	D	30.9	C	5.0	A	29.0	C			712	191	268	200	114	169	712	20	93
		EB	850	0	300	1,150	73.7	E	0.0	A	13.0	B	58.4	E			0			500	352	626	0	135	530
		WB	105	0	390	495	37.5	D	1.4	A	76.7	E	26.6	C			0			0	27	71	0	419	879
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	45.5	D	49.7	D	2.9	A	22.1	C	12.8	B	634	26	121	0			85	7	73
		SB	260	20	95	375	53.4	D	48.8	D	8.4	A	40.7	D			596	216	326	0			596	32	65
		EB	95	1525	25	1,645	41.8	D	11.1	B	0.9	A	12.6	B			1405	143	215	845	63	106	1405	4	41
		WB	70	1080	200	1,350	31.2	C	3.8	A	1.5	A	4.7	A			586	60	116	380	38	92	586	14	50
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.4	A	0			0			0		
		SB	50	0	50	100	46.8	E	0.0	A	13.5	B	28.9	D			580			580	35	71	50	30	72
		EB	20	1820	0	1,840	22.8	C	4.3	A	0.0	A	4.5	A			660			120	15	38	0		
		WB	0	1300	60	1,360	0.0	A	7.8	A	3.2	A	7.6	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	143.3	F	61.9	E	44.2	D	73.4	E	47.5	D	3864	333	517	500	174	325	120	77	145
		SB	35	285	150	470	250.4	F	61.1	E	9.6	A	59.9	E			1231	210	358	220	86	202	300	32	235
		EB	250	1525	95	1,870	105.7	F	31.9	C	8.8	A	41.2	D			1300	469	622	90	221	230	320	43	479
		WB	90	1100	35	1,225	56.6	E	37.6	D	28.9	C	38.7	D			1405	237	350	260	39	108	80	7	99
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	15.3	B	0			0			0		
		SB	730	0	65	795	26.7	C	0.0	A	16.7	B	25.9	C			0			250	178	193	50	20	74
		EB	50	1600	0	1,650	44.4	D	12.0	B	0.0	A	13.1	B			1550	88	143	900	41	94	0		
		WB	0	1160	850	2,010	0.0	A	11.7	B	14.5	B	12.9	B			1631	112	288	0			1631	83	220
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	94.5	F	86.7	F	60.6	E	86.4	F	66.9	E	712	536	759	220	305	430	0		
		SB	175	1455	235	1,865	62.6	E	23.4	C	25.0	C	27.0	C			1034	240	343	250	111	195	0		
		EB	420	200	570	1,190	56.6	E	44.2	D	29.5	C	41.5	D			2641	156	376	155	171	282	1000	218	377
		WB	50	120	60	230	677.4	F	360.2	F	355.5	F	411.7	F			449	447	475	449	354	464	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	103.4	F	22.7	C	99.4	F	55.9	E	1034	837	1070	0			0		
		SB	135	1685	0	1,820	34.9	C	3.6	A	0.0	A	6.3	A			1063	13	64	230	96	199	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	50.9	D	0.0	A	35.1	D	44.1	D			1000			1000	138	246	1000	86	194
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	108.6	F	122.1	F	10.0	B	110.4	F	103.6	F	1063	1012	1111	190	362	370	0		
		SB	170	1420	120	1,710	86.4	F	11.2	B	8.8	A	18.6	B			652	95	179	275	78	124	0		
		EB	175	80	300	555	719.0	F	395.2	F	455.8	F	524.2	F			1390	1210	1411	150	194	200	240	175	265
		WB	100	75	170	345	164.9	F	156.4	F	282.8	F	216.5	F			1324	530	899	50	43	103	150	164	175
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	100.5	F	104.7	F	9.0	A	95.5	F	80.8	F	652	669	689	240	265	370	652	35	70
		SB	290	1365	150	1,805	80.4	F	38.4	D	9.9	A	42.4	D			2535	314	559	220	156	351	1000	33	74
		EB	590	520	125	1,235	220.3	F	61.2	E	19.5	B	128.4	F			746	713	833	290	480	490	600	67	140
		WB	220	450	325	995	67.6	E	75.2	E	52.4	D	66.3	E			2489	180	282	190	88	140	210	167	263
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	45.7	D	43.7	D	17.1	B	40.5	D	36.1	D	1231	214	425	310	60	112	235	44	258
		SB	120	300	140	560	67.2	E	40.5	D	12.5	B	39.2	D			2090	200	334	150	101	153	150	59	158
		EB	290	615	80	985	45.2	D	29.5	C	13.1	B	32.7	C			2489	160	229	395	179	301	345	25	63
		WB	90	740	120	950	29.6	C	36.7	D	20.4	C	34.3	C			738	216	343	515	50	103	105	96	225
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.1	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	9.8	A	9.8	A			1000			0			1000	47	87
		EB	60	765	0	825	29.6	D	14.9	B	0.0	A	15.8	C			738	130	224	50	36	74	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162	1	21	0			0		

Table X
2040 Future Conditions
Longmont, CO

Clover Basin SBR

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	47.0	D	25.1	C	3.0	A	28.4	C	16.9	B	1238	95	205	920	66	129	260		
		SB	250	970	780	2,000	50.0	D	20.3	C	6.2	A	18.4	B			712	103	197	180	71	134	712	23	103
		EB	250	0	125	375	36.8	D	0.0	A	6.6	A	26.0	C			0			350	63	150	0	**36**	**82**
		WB	185	0	200	385	28.7	C	0.6	A	4.0	A	4.5	A			0			0	**53**	**102**	0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	38.8	D	0.0	A	1.4	A	20.1	C	5.3	A	302	9	43	0			85		
		SB	50	0	30	80	47.9	D	0.0	A	8.2	A	37.2	D			304	43	104	0			304	12	32
		EB	45	755	10	810	28.3	C	2.6	A	0.6	A	3.9	A			1406	25	92	845	26	107	1406	1	20
		WB	90	1490	100	1,680	8.2	A	1.4	A	0.4	A	1.7	A			585	19	54	380	23	56	585	3	23
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.0	A	0			0			0		
		SB	20	0	30	50	41.9	**E**	0.0	A	17.3	C	25.5	D			580			580	16	38	50	24	**45**
		EB	30	785	0	815	23.3	C	1.4	A	0.0	A	2.0	A			660			120	14	58	0		
		WB	0	1650	65	1,715	0.0	A	7.5	A	3.5	A	7.3	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	67.2	**E**	28.2	C	9.9	A	28.9	C	46.7	D	3865	117	269	500	49	111	120	40	**145**
		SB	20	480	200	700	36.9	D	40.5	D	10.1	B	31.4	C			1231	273	427	220	28	**244**	300	53	**240**
		EB	80	635	90	805	62.0	**E**	32.3	C	3.7	A	31.9	C			1302	185	309	90	**72**	**229**	320	5	41
		WB	300	1455	45	1,800	68.2	**E**	62.2	**E**	51.7	D	62.9	**E**			1405	567	762	260	**299**	**370**	80	9	**67**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	18.8	B	0			0			0		
		SB	525	0	110	635	54.0	D	0.0	A	36.8	D	51.2	D			0			250	165	**198**	50	**46**	**75**
		EB	25	730	0	755	29.3	C	13.1	B	0.0	A	13.7	B			1550	88	162	900	26	72	0		
		WB	0	1690	635	2,325	0.0	A	12.9	B	9.4	A	12.0	B			1631	151	723	0			1631	38	87
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	58.0	**E**	8.7	A	5.9	A	22.4	C	19.0	B	712	44	206	220	110	**238**	0		
		SB	40	1640	240	1,920	39.7	D	13.7	B	4.9	A	13.1	B			1036	182	276	250	28	76	560	36	73
		EB	85	30	360	475	42.7	D	37.7	D	27.3	C	30.7	C			2641	21	57	155	42	86	1000	116	197
		WB	0	65	15	80	0.0	A	52.3	D	19.9	B	45.7	D			449	60	114	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	2.6	A	2.9	A	2.6	A	3.9	A	1036	4	42	0			0		
		SB	45	1880	0	1,925	10.4	B	3.4	A	0.0	A	3.5	A			1060	15	81	230	21	53	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	67.3	**E**	0.0	A	4.9	A	40.6	D			1000			1000	33	78	1000	18	31
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	39.6	D	14.0	B	13.2	B	17.9	B	16.4	B	1060	129	202	190	61	101	0		
		SB	100	1710	125	1,935	42.3	D	10.8	B	14.2	B	12.5	B			650	165	307	275	48	89	0		
		EB	90	20	190	300	48.1	D	48.6	D	27.0	C	34.4	C			1032	25	86	150	64	**125**	240	107	**195**
		WB	25	20	40	85	45.4	D	37.1	D	5.4	A	28.5	C			1138	8	28	50	19	**49**	150	6	25
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	59.8	**E**	15.5	B	10.7	B	18.5	B	30.9	C	650	69	158	240	28	74	650		
		SB	310	1720	240	2,270	42.0	D	25.8	C	44.2	D	29.8	C			2534	373	619	220	115	**190**	0		
		EB	125	325	80	530	71.0	**E**	37.4	D	19.6	B	42.1	D			734	89	155	290	72	121	600	43	94
		WB	135	340	190	665	51.9	D	53.0	D	12.5	B	40.9	D			2489	115	173	190	71	130	210	72	144
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	32.9	C	20.5	C	7.5	A	20.6	C	23.4	C	1231	114	202	310	42	84	235	15	54
		SB	100	450	140	690	38.2	D	35.5	D	8.8	A	30.3	C			2090	233	391	150	90	**175**	150	69	**320**
		EB	140	425	150	715	27.7	C	31.0	C	23.6	C	28.9	C			2489	127	187	395	75	140	345	68	159
		WB	100	460	190	750	15.5	B	16.8	B	7.9	A	14.4	B			738	84	174	515	37	76	105	47	**83**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.7	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	8.3	A	8.3	A			1000			0			1000	66	115
		EB	40	545	0	585	12.3	B	18.0	C	0.0	A	17.6	C			738	101	220	50	26	**68**	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.2	A	1.0	A			159	4	40	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	62.0	**E**	50.7	D	5.6	A	47.9	D	32.8	C	1240	212	304	920	62	124	260	2	28
		SB	360	1205	510	2,075	58.8	**E**	30.9	C	4.3	A	29.4	C			712	188	286	200	110	**180**	712	13	54
		EB	850	0	300	1,150	51.5	D	0.0	A	13.0	B	41.8	D			0			500	283	**396**	0	**86**	**182**
		WB	105	0	390	495	39.5	D	0.9	A	23.4	C	11.2	B			0			0	**31**	**83**	0	**255**	**434**
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	37.7	D	48.5	D	2.0	A	18.2	B	14.2	B	634	29	92	0			85	4	60
		SB	260	20	95	375	48.9	D	60.4	**E**	9.5	A	39.0	D			596	199	315	0			596	33	84
		EB	95	1525	25	1,645	42.4	D	11.8	B	1.0	A	13.2	B			1405	157	408	845	62	151	1405	5	28
		WB	70	1080	200	1,350	86.9	**F**	3.8	A	1.5	A	8.0	A			586	52	123	380	70	132	586	14	42
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	9.7	A	0			0			0		
		SB	50	0	50	100	142.3	**F**	0.0	A	71.8	**F**	100.0	**F**			580			580	94	268	50	31	**73**
		EB	20	1820	0	1,840	22.5	C	7.5	A	0.0	A	7.7	A			660	25	94	120	15	74	0		
		WB	0	1300	60	1,360	0.0	A	7.3	A	3.1	A	7.1	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	98.0	**F**	58.8	**E**	42.1	D	63.4	**E**	60.2	**E**	3864	317	561	500	146	324	120	54	**145**
		SB	35	285	150	470	116.3	**F**	58.2	**E**	11.9	B	46.5	D			1231	182	297	220	24	133	300	14	93
		EB	250	1525	95	1,870	159.3	**F**	63.1	**E**	37.5	D	74.0	**E**			1300	733	934	90	**220**	**230**	320	170	**480**
		WB	90	1100	35	1,225	53.7	D	43.7	D	29.7	C	43.9	D			1405	289	444	260	44	182	80	9	**101**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.1	B	0			0			0		
		SB	730	0	65	795	24.5	C	0.0	A	16.8	B	23.9	C			0			250	180	**202**	50	30	**75**
		EB	50	1600	0	1,650	40.4	D	12.5	B	0.0	A	13.4	B			1550	93	150	900	38	74	0		
		WB	0	1160	850	2,010	0.0	A	13.4	B	17.4	B	15.1	B			1631	137	751	0			1631	124	316
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	84.8	**F**	26.5	C	24.3	C	36.4	D	44.0	D	712	241	382	220	**185**	**286**	0		
		SB	175	1455	235	1,865	78.0	**E**	19.8	B	6.9	A	23.3	C			1035	171	286	250	141	**257**	560	47	124
		EB	420	200	570	1,190	50.4	D	45.2	D	29.2	C	40.0	D			2641	158	274	155	**176**	**275**	1000	222	347
		WB	50	120	60	230	443.8	**F**	400.6	**F**	382.5	**F**	405.0	**F**			449	**453**	**484**	449	287	**463**	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	9.6	A	10.8	B	9.6	A	10.8	B	1035	107	185	0			0		
		SB	135	1685	0	1,820	44.2	D	4.1	A	0.0	A	7.3	A			1063	38	156	230	112	**201**	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	53.4	D	0.0	A	21.7	C	39.2	D			1000			1000	131	227	1000	67	141
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	34.1	C	18.9	B	24.5	C	21.7	C	25.9	C	1063	180	297	190	125	**218**	0		
		SB	170	1420	120	1,710	82.0	**F**	11.6	B	11.5	B	18.8	B			652	106	192	275	83	126	0		
		EB	175	80	300	555	87.4	**F**	50.3	D	30.6	C	51.8	D			1390	211	478	150	**152**	**199**	240	161	**263**
		WB	100	75	170	345	61.1	**E**	48.2	D	35.0	D	45.8	D			1324	77	326	50	**63**	**120**	150	81	**175**
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	84.9	**F**	79.0	**E**	81.7	**F**	79.8	**E**	69.6	**E**	652	**527**	**631**	240	**222**	**370**	652		
		SB	290	1365	150	1,805	71.3	**E**	23.0	C	22.2	C	31.0	C			2534	185	316	220	131	**229**	0		
		EB	590	520	125	1,235	180.0	**F**	59.4	**E**	22.0	C	112.7	**F**			746	**598**	**824**	290	**461**	**490**	600	83	334
		WB	220	450	325	995	71.8	**E**	78.5	**E**	33.3	C	62.2	**E**			2489	174	254	190	94	**168**	210	131	**284**
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	39.9	D	42.5	D	13.9	B	38.7	D	36.3	D	1231	201	310	310	63	200	235	38	**191**
		SB	120	300	140	560	60.6	**E**	34.2	C	11.8	B	34.8	C			2090	165	294	150	91	**173**	150	48	**240**
		EB	290	615	80	985	50.7	D	30.4	C	13.2	B	34.7	C			2489	162	271	395	177	**305**	345	24	69
		WB	90	740	120	950	28.7	C	40.7	D	20.7	C	37.1	D			738	226	355	515	54	114	105	**110**	**224**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.0	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	10.2	B	10.2	B			1000			0			1000	54	143
		EB	60	765	0	825	28.9	D	14.8	B	0.0	A	15.6	C			738	139	287	50	33	**68**	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162	3	32	0			0		

Table X
2040 Future Conditions
Longmont, CO

Hover/Nelson_x2 NBT/SBT Lanes

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	265	710	90	1,065	46.4	D	23.6	C	2.6	A	27.3	C	17.1	B	1238	94	172	920	75	142	260		2
		SB	250	970	780	2,000	51.1	D	21.0	C	7.0	A	19.2	B			712	109	193	180	66	124	712	31	94
		EB	250	0	125	375	36.1	D	0.0	A	7.2	A	26.6	C			0			350	67	128	0	**37**	**78**
		WB	185	0	200	385	29.6	C	0.8	A	3.6	A	4.5	A			0			0	**44**	**91**	0		
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	44.4	D	0.0	A	1.2	A	19.2	B	5.2	A	302	7	28	0			85		
		SB	50	0	30	80	46.7	D	0.0	A	7.0	A	30.1	C			304	40	103	0			304	16	35
		EB	45	755	10	810	19.8	B	3.1	A	0.5	A	4.0	A			1406	31	84	845	26	62	1406		6
		WB	90	1490	100	1,680	7.8	A	1.9	A	0.6	A	2.2	A			585	17	76	380	22	66	585	3	25
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.9	A	0			0			0		
		SB	20	0	30	50	62.5	**F**	0.0	A	12.6	B	27.8	D			580			580	18	87	50	22	**68**
		EB	30	785	0	815	16.3	C	1.4	A	0.0	A	1.9	A			660			120	14	44	0		
		WB	0	1650	65	1,715	0.0	A	7.3	A	3.1	A	7.1	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	64.6	**E**	28.7	C	9.5	A	29.0	C	37.8	D	3865	119	215	500	45	107	120	47	**145**
		SB	20	480	200	700	39.9	D	41.7	D	11.2	B	32.1	C			1231	273	424	220	27	**244**	300	97	**325**
		EB	80	635	90	805	55.8	**E**	30.3	C	4.4	A	29.9	C			1302	170	277	90	56	**154**	320	7	76
		WB	300	1455	45	1,800	54.0	D	43.8	D	35.8	D	45.3	D			1405	425	600	260	**230**	**370**	80	2	31
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	16.0	B	0			0			0		
		SB	525	0	110	635	44.5	D	0.0	A	28.2	C	41.6	D			0			250	163	**191**	50	**55**	**75**
		EB	25	730	0	755	26.3	C	12.9	B	0.0	A	13.3	B			1550	82	186	900	16	52	0		
		WB	0	1690	635	2,325	0.0	A	10.3	B	8.8	A	9.9	A			1631	87	183	0			1631	31	94
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	53.2	D	7.7	A	4.3	A	20.1	C	28.0	C	712	37	110	220	108	**193**	0		
		SB	40	1640	240	1,920	46.4	D	29.0	C	52.3	D	32.2	C			1035	526	**872**	250	30	62	0		
		EB	85	30	360	475	43.5	D	36.1	D	24.8	C	28.9	C			2641	24	62	155	36	78	1000	92	163
		WB	0	65	15	80	0.0	A	52.4	D	14.9	B	45.3	D			449	57	127	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	2.2	A	2.1	A	2.2	A	4.2	A	1035	3	36	0			0		
		SB	45	1880	0	1,925	9.5	A	3.8	A	0.0	A	3.9	A			1060	36	165	230	18	37	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	56.6	**E**	0.0	A	6.9	A	40.6	D			1000			1000	41	93	1000	15	45
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	40.6	D	15.0	B	6.0	A	17.6	B	15.2	B	1060	127	238	190	50	80	0		
		SB	100	1710	125	1,935	43.8	D	8.4	A	9.1	A	10.4	B			650	113	212	275	54	102	0		
		EB	90	20	190	300	52.7	D	56.1	**E**	22.6	C	34.0	C			1032	21	106	150	79	**155**	240	92	161
		WB	25	20	40	85	50.1	D	54.5	D	5.4	A	29.2	C			1138	7	31	50	17	**45**	150	9	25
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	54.7	D	16.7	B	4.5	A	19.0	B	35.0	D	650	98	200	240	34	67	650	15	56
		SB	310	1720	240	2,270	50.2	D	36.8	D	13.0	B	36.2	D			2535	353	662	220	143	**312**	1000	32	71
		EB	125	325	80	530	75.3	**E**	37.6	D	16.6	B	43.4	D			734	91	157	290	69	113	600	38	81
		WB	135	340	190	665	54.4	D	55.5	**E**	16.1	B	43.9	D			2489	121	215	190	75	125	210	79	**178**
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	25.1	C	22.3	C	8.8	A	20.9	C	24.4	C	1231	134	225	310	43	90	235	12	34
		SB	100	450	140	690	35.1	D	37.5	D	8.5	A	31.2	C			2090	261	407	150	91	**174**	150	63	**231**
		EB	140	425	150	715	31.2	C	32.3	C	20.2	C	29.7	C			2489	127	223	395	95	180	345	63	119
		WB	100	460	190	750	17.8	B	18.6	B	8.3	A	16.1	B			738	101	179	515	41	79	105	48	**132**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	5.5	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	7.8	A	7.8	A			1000			0			1000	66	133
		EB	40	545	0	585	13.2	B	9.3	A	0.0	A	9.5	A			738	58	174	50	19	**74**	0		
		WB	0	550	110	660	0.0	A	1.0	A	1.2	A	1.0	A			159	4	26	0			0		
PM Peak Hour	Ken Pratt / Hover Street (Signal)	NB	190	1190	125	1,505	68.2	**E**	142.7	**F**	34.3	C	122.0	**F**	55.4	**E**	1240	483	**1076**	920	188	666	260	91	**410**
		SB	360	1205	510	2,075	54.0	D	30.9	C	5.0	A	29.0	C			712	191	268	200	114	**169**	712	20	93
		EB	850	0	300	1,150	73.7	**E**	0.0	A	13.0	B	58.4	**E**			0			500	352	**626**	0	**135**	**530**
		WB	105	0	390	495	37.5	D	1.4	A	76.7	**E**	26.6	C			0			0	**27**	**71**	0	**419**	**879**
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	45.5	D	49.7	D	2.9	A	22.1	C	12.8	B	634	26	121	0			85	7	**73**
		SB	260	20	95	375	53.4	D	48.8	D	8.4	A	40.7	D			596	216	326	0			596	32	65
		EB	95	1525	25	1,645	41.8	D	11.1	B	0.9	A	12.6	B			1405	143	215	845	63	106	1405	4	41
		WB	70	1080	200	1,350	31.2	C	3.8	A	1.5	A	4.7	A			586	60	116	380	38	92	586	14	50
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.4	A	0			0			0		
		SB	50	0	50	100	46.8	**E**	0.0	A	13.5	B	28.9	D			580			580	35	71	50	30	**72**
		EB	20	1820	0	1,840	22.8	C	4.3	A	0.0	A	4.5	A			660			120	15	38	0		
		WB	0	1300	60	1,360	0.0	A	7.8	A	3.2	A	7.6	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	143.3	**F**	61.9	**E**	44.2	D	73.4	**E**	47.5	D	3864	333	517	500	174	325	120	77	**145**
		SB	35	285	150	470	250.4	**F**	61.1	**E**	9.6	A	59.9	**E**			1231	210	358	220	86	**202**	300	32	**235**
		EB	250	1525	95	1,870	105.7	**F**	31.9	C	8.8	A	41.2	D			1300	469	622	90	**221**	**230**	320	43	**479**
		WB	90	1100	35	1,225	56.6	**E**	37.6	D	28.9	C	38.7	D			1405	237	350	260	39	108	80	7	**99**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	15.3	B	0			0			0		
		SB	730	0	65	795	26.7	C	0.0	A	16.7	B	25.9	C			0			250	178	**193**	50	20	**74**
		EB	50	1600	0	1,650	44.4	D	12.0	B	0.0	A	13.1	B			1550	88	143	900	41	94	0		
		WB	0	1160	850	2,010	0.0	A	11.7	B	14.5	B	12.9	B			1631	112	288	0			1631	83	220
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	94.5	**F**	86.7	**F**	60.6	**E**	86.4	**F**	66.9	**E**	712	**536**	**759**	220	**305**	**430**	0		
		SB	175	1455	235	1,865	62.6	**E**	23.4	C	25.0	C	27.0	C			1034	240	343	250	**111**	**195**	0		
		EB	420	200	570	1,190	56.6	**E**	44.2	D	29.5	C	41.5	D			2641	156	376	155	**171**	**282**	1000	218	377
		WB	50	120	60	230	677.4	**F**	360.2	**F**	355.5	**F**	411.7	**F**			449	**447**	**475**	449	**354**	**464**	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	103.4	**F**	22.7	C	99.4	**F**	55.9	**E**	1034	**837**	**1070**	0			0		
		SB	135	1685	0	1,820	34.9	C	3.6	A	0.0	A	6.3	A			1063	13	64	230	96	**199**	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	50.9	D	0.0	A	35.1	D	44.1	D			1000			1000	138	246	1000	86	194
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	108.6	**F**	122.1	**F**	10.0	B	110.4	**F**	103.6	**F**	1063	**1012**	**1111**	190	**362**	**370**	0		
		SB	170	1420	120	1,710	86.4	**F**	11.2	B	8.8	A	18.6	B			652	95	179	275	78	124	0		
		EB	175	80	300	555	719.0	**F**	395.2	**F**	455.8	**F**	524.2	**F**			1390	**1210**	**1411**	150	**194**	**200**	240	175	**265**
		WB	100	75	170	345	164.9	**F**	156.4	**F**	282.8	**F**	216.5	**F**			1324	530	899	50	**43**	**103**	150	**164**	**175**
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	100.5	**F**	104.7	**F**	9.0	A	95.5	**F**	80.8	**F**	652	**669**	**689**	240	**265**	**370**	652	35	70
		SB	290	1365	150	1,805	80.4	**F**	38.4	D	9.9	A	42.4	D			2535	314	559	220	156	**351**	1000	33	74
		EB	590	520	125	1,235	220.3	**F**	61.2	**E**	19.5	B	128.4	**F**			746	**713**	**833**	290	**480**	**490**	600	67	140
		WB	220	450	325	995	67.6	**E**	75.2	**E**	52.4	D	66.3	**E**			2489	180	282	190	88	140	210	**167**	**263**
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	45.7	D	43.7	D	17.1	B	40.5	D	36.1	D	1231	214	425	310	60	112	235	44	**258**
		SB	120	300	140	560	67.2	**E**	40.5	D	12.5	B	39.2	D			2090	200	334	150	101	**153**	150	59	**158**
		EB	290	615	80	985	45.2	D	29.5	C	13.1	B	32.7	C			2489	160	229	395	179	**301**	345	25	63
		WB	90	740	120	950	29.6	C	36.7	D	20.4	C	34.3	C			738	216	343	515	50	103	105	**96**	**225**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	8.1	A	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	9.8	A	9.8	A			1000			0			1000	47	87
		EB	60	765	0	825	29.6	D	14.9	B	0.0	A	15.8	C			738	130	224	50	36	**74**	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162	1	21	0			0		

Table X

2040 Future Conditions
Longmont, CO

Displaced Left Turns at both KenPratt/Hover and Hover/Nelson

	Intersection	Approach	Demand Volumes				Delay (s/veh)						LOS By Approach		LOS By Intersection		Queing Information (feet)								
																	Through			Left Turn			Right Turn		
			L	T	R	Total	L	LOS	T	LOS	R	LOS	Delay (S/Veh)	LOS	Delay (S/Veh)	LOS	Link Length	Avg.	Max	Storage	Avg.	Max	Storage	Avg.	Max
AM Peak Hour	CFI (Signal)	NB	265	710	90	1,065	42.3	D	25.7	C	4.2	A	27.7	C	17.5	B	1237	101	184	500	56	115	0		
		SB	250	970	780	2,000	48.2	D	20.8	C	7.7	A	19.1	B			712	108	183	300	70	122	0	**44**	**143**
		EB	250	0	125	375	36.4	D	0.0	A	7.1	A	26.2	C			0			300	64	135	0	**40**	**92**
		WB	185	0	200	385	35.8	D	1.6	A	5.9	A	6.3	A			0			0	**51**	**127**	0	**6**	**95**
	Ken Pratt / Village at The Peaks (Signal)	NB	15	0	10	25	55.6	E	0.0	A	2.1	A	37.8	D	7.4	A	634	8	28	0			85		
		SB	50	0	30	80	57.8	E	0.0	A	6.0	A	33.3	C			596	31	75	0			596	16	51
		EB	45	755	10	810	23.6	C	6.3	A	0.5	A	7.2	A			1405	71	160	845	25	56	1405	1	14
		WB	90	1490	100	1,680	13.3	B	5.5	A	0.8	A	5.8	A			586	110	230	380	38	98	586	6	28
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	6.4	A	0			0			0		
		SB	20	0	30	50	57.7	F	0.0	A	8.5	A	24.9	C			580			580	20	56	50	24	**50**
		EB	30	785	0	815	17.0	C	2.6	A	0.0	A	3.2	A			660			120	17	62	0		
		WB	0	1650	65	1,715	0.0	A	7.6	A	3.7	A	7.4	A			1400			0			1400		7
	Ken Pratt / Sunset Street (Signal)	NB	60	260	100	420	85.3	F	27.6	C	9.7	A	30.8	C	42.5	D	3865	103	208	500	47	120	120	31	**120**
		SB	20	480	200	700	46.8	D	47.1	D	14.4	B	37.5	D			1237	296	480	220	16	95	300	137	**300**
		EB	80	635	90	805	49.4	D	28.3	C	4.7	A	27.3	C			1300	169	255	90	42	**135**	320	5	42
		WB	300	1455	45	1,800	64.4	E	50.7	D	42.9	D	52.9	D			1405	460	667	260	**272**	**370**	80	6	33
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	17.9	B	0			0			0		
		SB	525	0	110	635	48.9	D	0.0	A	40.3	D	47.5	D			0			250	153	182	50	**56**	**75**
		EB	25	730	0	755	42.1	D	13.6	B	0.0	A	14.4	B			1550	94	167	900	18	74	0		
		WB	0	1690	635	2,325	0.0	A	12.2	B	9.1	A	11.4	B			1631	118	231	0			1631	45	118
	Hover Street / Clover Basin Drive (Signal)	NB	335	790	35	1,160	110.0	F	17.0	B	14.8	B	41.8	D	28.6	C	712	102	211	220	**169**	**266**	0		
		SB	40	1640	240	1,920	59.0	E	15.5	B	25.4	C	17.8	B			1034	295	497	250	35	85	0		
		EB	85	30	360	475	39.9	D	35.9	D	34.4	C	35.5	D			2641	21	87	155	34	87	1000	119	220
		WB	0	65	15	80	0.0	A	49.5	D	21.8	C	45.0	D			449	53	109	449			0		
	Hover Street / Village at The Peaks (Signal)	NB	0	855	35	890	0.0	A	3.1	A	3.0	A	3.1	A	4.2	A	1034	8	45	0			0		
		SB	45	1880	0	1,925	8.9	A	3.6	A	0.0	A	3.7	A			1063	29	166	230	21	60	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	40	0	15	55	57.5	E	0.0	A	9.3	A	45.5	D			1000			1000	38	89	1000	11	31
	Hover Street / Bent Way (Signal)	NB	120	700	50	870	65.9	E	10.3	B	7.1	A	19.3	B	16.6	B	1063	98	180	190	64	102	0		
		SB	100	1710	125	1,935	41.6	D	10.5	B	13.8	B	12.4	B			654	122	182	275	55	81	0		
		EB	90	20	190	300	55.3	E	44.2	D	23.2	C	34.9	C			1390	22	64	150	71	**149**	240	76	158
		WB	25	20	40	85	56.2	E	45.0	D	6.0	A	27.3	C			1324	9	44	50	19	**44**	150	15	54
	Hover Street / Nelson Road (Signal)	NB	70	680	80	830	72.7	E	13.5	B	11.1	B	17.7	B	35.6	D	0			0			0		
	PARTIAL DISPLACED LEFT TURN	SB	310	1720	240	2,270	55.6	E	35.9	D	2.0	A	35.1	D			0			0			0		
	SUM OF ALL DELAYS	EB	125	325	80	530	43.8	D	73.5	E	5.9	A	54.6	D			0			0			0		
	AT DLT INTERSECTIONS	WB	135	340	190	665	64.5	E	60.5	E	0.8	A	43.2	D			0			0			0		
	Nelson Road / Sunset Street (Signal)	NB	65	260	60	385	27.6	C	21.1	C	7.1	A	20.1	C	18.8	B	1237	118	190	310	32	67	235	12	44
		SB	100	450	140	690	41.6	D	37.1	D	8.6	A	31.9	C			2095	254	411	150	92	**174**	150	71	**325**
		EB	140	425	150	715	23.4	C	10.2	B	9.4	A	12.8	B			1923	36	74	395	60	111	345	24	68
		WB	100	460	190	750	20.6	C	13.5	B	6.4	A	12.7	B			738	76	173	515	50	109	105	43	**138**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	4.6	A	0			0			0		
		SB	90	0	200	290	0.0	A	0.0	A	9.7	A	9.7	A			1000			0			1000	78	140
		EB	40	545	0	585	7.1	A	6.0	A	0.0	A	6.1	A			738	29	152	50	14	**58**	0		
		WB	0	550	110	660	0.0	A	0.9	A	1.3	A	1.0	A			162	1	14	0			0		
PM Peak Hour	CFI (Signal)	NB	190	1190	125	1,505	66.2	E	42.4	D	7.4	A	42.1	D	30.3	C	1237	182	266	300	52	128	300	1	16
		SB	360	1205	510	2,075	54.1	D	27.4	C	4.4	A	26.6	C			712	183	265	300	98	183	0	**7**	**63**
		EB	850	0	300	1,150	45.1	D	0.0	A	16.9	B	38.3	D			0			500	260	344	1000	96	204
		WB	105	0	390	495	36.4	D	1.2	A	33.3	C	14.6	B			0			0	**26**	**68**	0	**296**	**436**
	Ken Pratt / Village at The Peaks (Signal)	NB	30	10	55	95	42.3	D	46.3	D	2.1	A	18.5	B	14.4	B	634	26	66	0			85	3	52
		SB	260	20	95	375	48.4	D	47.6	D	7.1	A	38.7	D			596	203	306	0			596	26	50
		EB	95	1525	25	1,645	40.9	D	13.3	B	1.0	A	14.5	B			1405	175	335	845	60	126	1405	3	30
		WB	70	1080	200	1,350	41.2	D	5.5	A	1.6	A	6.8	A			586	60	198	380	47	100	586	13	27
	Ken Pratt / Industrial Circle	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	7.2	A	0			0			0		
		SB	50	0	50	100	77.5	F	0.0	A	17.4	C	45.7	E			580			580	56	138	50	**45**	**75**
		EB	20	1820	0	1,840	17.8	C	5.3	A	0.0	A	5.4	A			660			120	13	44	0		
		WB	0	1300	60	1,360	0.0	A	6.9	A	2.9	A	6.7	A			1400			0			1400		
	Ken Pratt / Sunset Street (Signal)	NB	110	410	90	610	123.3	F	50.9	D	44.4	D	62.4	E	41.0	D	3864	288	484	500	162	300	120	56	**120**
		SB	35	285	150	470	161.0	F	40.4	D	5.6	A	39.7	D			1237	99	234	220	51	122	300	9	106
		EB	250	1525	95	1,870	90.4	F	25.9	C	8.4	A	33.0	C			1300	324	489	90	**193**	**230**	320	32	**320**
		WB	90	1100	35	1,225	65.2	E	41.6	D	40.0	D	43.4	D			1405	273	469	260	56	**205**	80	7	**101**
	Ken Pratt / Nelson Road (Signal)	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	18.1	B	0			0			0		
		SB	730	0	65	795	39.9	D	0.0	A	31.2	C	39.0	D			0			250	177	**191**	50	32	**75**
		EB	50	1600	0	1,650	42.7	D	12.9	B	0.0	A	13.7	B			1550	92	166	900	37	96	0		
		WB	0	1160	850	2,010	0.0	A	13.2	B	15.6	B	14.2	B			1631	118	348	0			1631	84	227
	Hover Street / Clover Basin Drive (Signal)	NB	405	1885	140	2,430	73.6	E	25.9	C	27.1	C	33.6	C	48.9	D	712	245	470	220	160	**225**	0		
		SB	175	1455	235	1,865	164.7	F	30.5	C	30.0	C	43.3	D			1034	289	477	250	**269**	**352**	0		
		EB	420	200	570	1,190	53.3	D	46.8	D	30.2	C	41.4	D			2641	152	258	155	**163**	**231**	1000	229	371
		WB	50	120	60	230	758.1	F	353.7	F	348.4	F	402.5	F			449	**412**	**464**	449	324	**470**	0		
	Hover Street / Village at The Peaks (Signal)	NB	0	2255	110	2,365	0.0	A	10.2	B	12.5	B	10.3	B	11.0	B	1034	108	190	0			0		
		SB	135	1685	0	1,820	42.6	D	4.2	A	0.0	A	7.0	A			1063	40	138	230	106	**250**	0		
		EB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A			0			0			0		
		WB	180	0	140	320	51.0	D	0.0	A	27.9	C	40.5	D			1000			1000	130	204	1000	69	136
	Hover Street / Bent Way (Signal)	NB	350	1875	170	2,395	36.2	D	11.3	B	14.5	B	15.0	B	22.6	C	1063	130	253	190	129	**196**	0		
		SB	170	1420	120	1,710	68.2	E	20.3	C	21.2	C	24.8	C			654	179	247	275	79	134	0		
		EB	175	80	300	555	62.0	E	51.8	D	21.2	C	38.5	D			1390	112	284	150	**142**	**199**	240	127	**240**
		WB	100	75	170	345	59.8	E	53.7	D	24.4	C	40.1	D			1324	76	215	50	**63**	**119**	150	70	**169**
	Hover Street / Nelson Road (Signal)	NB	230	1815	175	2,220	95.2	F	43.6	D	17.4	B	46.6	D	65.2	E	0			0			0		
	PARTIAL DISPLACED LEFT TURN	SB	290	1365	150	1,805	59.8	E	27.0	C	1.0	A	30.1	C			0			0			0		
	SUM OF ALL DELAYS	EB	590	520	125	1,235	165.1	F	149.2	F	3.3	A	141.0	F			0			0			0		
	AT DLT INTERSECTIONS	WB	220	450	325	995	120.7	F	91.5	F	45.3	D	82.8	F			0			0			0		
	Nelson Road / Sunset Street (Signal)	NB	115	490	90	695	59.5	E	72.5	E	35.8	D	65.1	E	38.0	D	1237	423	547	310	157	**335**	235	136	**235**
		SB	120	300	140	560	69.7	E	41.5	D	12.5	B	40.7	D			2095	203	396	150	108	**174**	150	64	**251**
		EB	290	615	80	985	32.3	C	14.7	B	6.6	A	19.4	B			1923	110	183	395	133	235	345	15	40
		WB	90	740	120	950	25.7	C	39.3	D	21.8	C	35.9	D			738	245	362	515	48	101	105	**129**	**225**
	Nelson Road / Price Road	NB	0	0	0	0	0.0	A	0.0	A	0.0	A	0.0	A	11.0	B	0			0			0		
		SB	30	0	100	130	0.0	A	0.0	A	8.6	A	8.6	A			1000			0			1000	41	81
		EB	60	765	0	825	30.9	D	22.3	C	0.0	A	22.9	C			738	143	244	50	35	**74**	0		
		WB	0	850	50	900	0.0	A	0.9	A	0.7	A	0.9	A			162	9	74	0			0		

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