

Longmont

ENHANCED MULTI-USE
CORRIDOR PLAN



2018



ACCEPTED BY
LONGMONT CITY COUNCIL
MARCH 20, 2018

PREPARED FOR:



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Glossary of Acronyms

ACRONNYM	MEANING
AASHTO	American Association of State Highway and Transportation Officials
BRT	Bus Rapid Transit
EMUCs	Enhanced Multi-use Corridors
LTS	Level of Traffic Street
NACTO	National Association of City Transportation Officials
ROW	Right-of-way
ADT	Average Daily Traffic
RR	Railroad
LOS	Level of Service
SH	State Highway
ACS	American Community Survey
PROWAG	Public Rights-of-Way Accessibility Guidelines
MUTCD	Manual on Uniform Traffic Control Devices
FC	Face of Curb
BoW	Back of Walk



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Executive Summary

The Enhanced Multi-use Corridor Plan creates a vision for Enhanced Multi-use Corridors (EMUCs) in the City of Longmont, building upon the *Parks, Recreation and Trails Master Plan* (2014) and *Envision Longmont Multi-modal and Comprehensive Plan* (2016).

Enhanced Multi-Use Corridors (EMUCs) are street corridors that provide safe, comfortable, low-stress bicycle and pedestrian facilities, much like multi-use trails, to provide connectivity within the City's trail system and multi-modal transportation network.

These facilities can look different depending on the characteristics of the street and the right-of way available.

The Enhanced Multi-use Corridor Plan is a planning-level document that proposes designs for each of the Enhanced Multi-use Corridors. The network of Enhanced Multi-use Corridors was refined from previous planning efforts to improve connectivity to key destinations, including parks, trails and schools. For each corridor, a proposed design is identified along with cross-section and plan view diagrams and cost estimates. The proposed designs seek to maximize comfort for people walking, people biking on-street and people biking off-street so that these corridors can serve as transportation and recreation corridors for all ages and abilities. These designs were developed based on national best-practice design standards and guidelines.

Rather than a comprehensive set of construction documents, this planning-level document articulates a refined vision for each Enhanced Multi-use Corridor so that City staff can work to implement each corridor over time by working with various City of Longmont departments and members of the development community. The Enhanced Multi-use Corridor Plan will guide future street construction or reconstruction and future development or redevelopment. Through the development of the proposed designs, efforts were made to stay within the City's right-of-way and to minimize impacts to improvements already in the right-of-way and to traffic.

The Enhanced Multi-use Corridor Plan identifies a prioritization framework that City staff can apply moving forward. The intent of this prioritization framework is to identify projects that have a high community benefit, while recognizing that different corridors will have varying levels of implementation difficulty. Three corridor sections are identified as likely high priorities as they have a high community benefit and their improvements can be phased-in over time:

- 21st Avenue Section B: Hackberry Circle to Main Street
- Mountain View Avenue Sections B and C: Hover Street to Bross Street
- Mountain View Avenue Section F: Alpine Street to Deerwood Drive

Lastly, the Enhanced Multi-use Corridor Plan identified a preferred design for Coffman Street from 2nd Avenue to 11th Avenue to prioritize the State Highway 119 Bus Rapid Transit (BRT) and other local transit service through Downtown Longmont. The proposed Coffman Street design creates a truly multi-modal corridor with wide sidewalks, tree lawns, protected bike lanes, on-street parking, travel lanes and center-running bus lanes; this design will be refined as the State Highway 119 BRT project evolves.

Introduction

BACKGROUND & PURPOSE

The Enhanced Multi-use Corridor Plan creates a vision for Enhanced Multi-use Corridors (EMUCs) in the City of Longmont, building upon the *Parks, Recreation and Trails Master Plan* (2014) and *Envision Longmont Multi-modal and Comprehensive Plan* (2016).

Enhanced Multi-Use Corridors (EMUCs) are street corridors that provide safe, comfortable, low-stress bicycle and pedestrian facilities, much like multi-use trails, to provide connectivity within the City's trail system and multi-modal transportation network.

These facilities can look different depending on the characteristics of the street and the right-of way available.

In many cases, Enhanced Multi-use Corridors connect parks or destinations where multi-use trails are not feasible. Enhanced Multi-use Corridors expand the City's recreation and trails system and also provide citywide destination connectivity both directly and indirectly via other bicycle, pedestrian and transit facilities proposed in *Envision Longmont Multimodal and Comprehensive Plan* (2016).

The Enhanced Multi-use Corridor Plan is a planning-level document that proposes designs for each of the Enhanced Multi-use Corridors. For each corridor, a proposed design is identified along with cross-section and plan view diagrams and cost estimates. Rather than a comprehensive set of construction documents, this planning-level document articulates a refined vision for each Enhanced Multi-use Corridor so that City staff can work to implement each corridor over time by working with various City of Longmont departments and members of the development community. The Enhanced Multi-use Corridor Plan will guide future street construction or reconstruction and future development or redevelopment.

PROPOSED EMUC NETWORK

Figure 1 (page 9) shows the proposed network of Enhanced Multi-use Corridors, displayed in purple. This network was established by building off of the EMUCs recommended as a part of the *Parks, Recreation and Trails Master Plan* and *Envision Longmont*. The *Parks, Recreation and Trails Master Plan* identifies Enhanced Recreation Corridors and provided guidance about creating a network of recreation connections that should function as major recreational routes and build off of existing and proposed trails. The *Envision Longmont Multimodal and Comprehensive Plan* furthered this concept by identifying a complete, balanced and connected transportation system for transportation and recreation users; these two plans formed the foundation for the EMUC concept. Additional EMUCs were added through this planning process to provide a more connected network of low-stress facilities. **Appendix A** further discusses the methodology and approach used to determine EMUC alignments.

PROPOSED DESIGN DEVELOPMENT

The proposed designs for each corridor were informed by a combination of public input, interviews with peer communities, national standards, and best practices. Public outreach was collected in two phases – initial outreach and a survey on elements and visions for EMUCs completed in Summer 2017 and an open house and accompanying survey on draft EMUC cross-sections in November/December 2017. Detailed results from both phases of public outreach can be found in **Appendix B**. Traffic engi-

neers from peer communities in Colorado including Boulder, Denver and Fort Collins were also interviewed to gain a better understanding of how these communities address specific concerns and challenges faced on EMUCs such as crossings of major streets, protected bike lanes, green pavement markings and intersection treatments. A summary of these interviews is in **Appendix C**. Lastly, national and local guidance and design standards were applied, including the American Association of State Highway and Transportation Officials' (AASHTO) *Guide for the Development of Bicycle Facilities* and the National Association of City Transportation Officials' (NACTO) *Urban Bikeway Design Guide*.

TYPICAL DIMENSIONS OF STREET DESIGN ELEMENTS

The Enhanced Multi-use Corridor Plan proposes a variety of street design elements. Various guidelines and standards identify typical dimensions and relevant design criteria for each of these street design elements. Relevant guidelines and standards include a significant amount of detail; therefore, this section summarizes typical dimensions used to develop the Enhanced Multi-use Corridor Plan, recognizing its purpose and limitations as a planning document. The guidelines and standards used to develop this plan are:

- *Manual on Uniform Traffic Control Devices* (Federal Highway Administration, 2009)
- *A Policy on Geometric Design of Highways and Streets* (American Association of State Highway Transportation Officials, 2011)
- *Guide for the Development of Bicycle Facilities, 4th Edition* (American Association of State Highway Transportation Officials, 2012)
- *Urban Bikeway Design Guide, 2nd Edition* (National Association of City Transportation Officials, 2014)
- *Public Rights-of-Way Accessibility Guidelines* (United States Access Board, 2011)
- *City of Longmont Development and Design Standards* (City of Longmont, 2007)
- *Code of Ordinances* (City of Longmont, 2017)

Minimum and typical dimensions were applied throughout the Enhanced Multi-use Corridor Plan. Minimum and typical dimensions, rather than consistent dimensions for every street design element, were applied on a case-by-case basis as each of the Enhanced Multi-use Corridors has a different existing built condition. Variance in street design element dimensions helps to stay within the City's right-of-way or to minimize project costs by retaining the existing curb and gutter locations.

Based on these guidelines and standards, the typical dimensions of street design elements that apply in this plan are:

- Sidewalk – The minimum sidewalk width is 5 feet, per the *Public Rights-of-Way Accessibility Guidelines* for sidewalks without passing spaces.
- Sidepath – The minimum sidepath width, which is shared by people walking and people biking off-street, is 8 feet per the *City of Longmont Development and Design Standards* and per the *Code of Ordinances*.
- Landscape buffer – The minimum landscape buffer width is 4 feet; note that wider landscape buffers are necessary where street trees are desired.
- Landscape buffer with tree lawn – the minimum landscape buffer with tree lawn is 8 feet.
- Travel lanes – Travel lanes are typically 10-11 feet per *A Policy on Geometric Design of Highways and Streets*. These travel lane widths encourage lower travel speeds and provide space for other street design elements. Some travel lanes are recommended to be 12 or 13 feet wide, often so they can be shared by people biking and vehicles or to accommodate heavy vehicles. In one instance, 9-foot travel lanes are recommended where they already exist (Emery Street Section C: 10th Avenue to 9th Avenue).

- Two-way left-turn lanes – Two-way left-turn lanes are typically 10-11 feet.
- Bike lane – The minimum bike lane width is 5 feet per the *Guide for the Development of Bicycle Facilities*. Wider bike lanes, up to 7 feet, are recommended where additional street width exists.
- Bike lane buffer – Although 1.5-foot bike lane buffers are the minimum per the *Urban Bikeway Design Guide*, the minimum width of a bike lane buffer in the Enhanced Multi-use Corridor Plan is 2 feet.
- On-street parking – On-street parking is typically 7-8 feet. In one instance, 6-foot on-street parking is retained where it already exists (Emery Street Section C: 10th Avenue to 9th Avenue).

OTHER IMPORTANT NOTES

This report contains proposed cross-section and plan view diagrams for each of the proposed EMUCs. These are concept-level designs and should be explored in greater detail prior to construction. The cross-sections do not always accurately show striping as it will be constructed (in particular, striping between bike lanes and travel lanes and between on-street parking and travel lanes may differ from what is ultimately implemented). Striping shown in the plan view diagrams is generally more accurate.

While right-of-way varies throughout all corridors, care was taken to ensure that all improvements are within the known right-of-way (ROW). The cross-sections identify the existing and proposed back-of-walk (BoW, or outer edge of sidewalk). In most cases, the right-of-way is located beyond the back-of-walk. The next stage of detailed design will consider right-of-way and property surveys in greater detail. However, the intent is to avoid having to acquire additional right-of-way.

This report shows typical cross-sections for each segment. The next stage of design will consider these proposed cross-sections in the context of improvements made in the right-of-way by adjacent property owners, such as mature landscaping, fences or light poles. In many cases, maintaining the existing back-of-walk at or near its existing location was considered to minimize impacts to these improvements. Where the back-of-walk is proposed to move, the City is sensitive to minimizing impacts to existing elements in the right-of-way that have community-wide benefit, such as mature landscaping.

Longmont's current standards require sidewalks along local and collector streets to be at least 5 feet wide to provide a comfortable walking environment for pedestrians of all ages and abilities. There are some corridors where existing sidewalks do not meet this standard. Retrofitting these sidewalks may be too expensive to complete or the benefit may be outweighed by the cost of impacting other street elements, such as a mature tree canopy. In these cases, it is recommended to be selective when widening sidewalks to not compromise street elements like a mature tree canopy. Most of this widening will only occur with property redevelopment or when other rehabilitation maintenance is taking place. The plan view diagrams in **Appendix D** and cost estimates in **Appendix E** assume that this widening will occur with redevelopment or rehabilitation maintenance and not as a part of a EMUC capital project. The cross-section diagrams show the 5-foot sidewalk width to convey the long-term vision for these corridors.

For each of the EMUCs, the following criteria are identified:

- **Right-of-way (ROW):** The width of the City's ownership for the roadway, delineated by the parcel boundaries on either side of the street.
- **Existing traffic volume:** Existing volumes are collected from the City of Longmont count data base (2008-2014); the City provided assumed volumes where existing traffic counts were not available.

- **Forecasted traffic volume:** 2040 volumes from Envision Longmont based on full build out of the *Envision Longmont* proposed land uses, developed through the regional travel model; the City provided assumed volumes where traffic forecasts were not available.
- **Proposed cross-section diagrams with existing cross-section dimensions:** Proposed cross-sections are shown by segment, each time the cross-section changes significantly. Existing dimensions are shown under the proposed cross-section. The edge of roadway and beginning of curb, known as face-of-curb, denoted by *FC* in the cross-sections, is marked. The outer edge of the sidewalk, known as back-of-walk, denoted by *BoW* in the cross-sections, is marked.
- **Cost estimate:** Detailed in **Appendix E**; cost estimates assume a 20% contingency, 8% for contractor overhead and profit and 5% for mobilization.
- **Level of Traffic Stress (LTS):** Level of Traffic Stress measures the comfort of walkways and bike ways for people walking and biking. A more detailed description of Level of Traffic Stress is provided in the next section.
- **Potential Tradeoffs:** Potential tradeoffs are listed for each EMUC and typically include removal of parking, removal of a travel lane, construction beyond the existing back-of-walk and effects to level of service (as identified in **Appendix F**).

See **Appendix G** for more details on the existing conditions of the EMUCs, used to inform and measure proposed cross-sections.

LEVEL OF TRAFFIC STRESS

Level of Traffic Stress (LTS) is a methodology for analyzing the comfort of walkways and bikeways for people walking and biking. LTS estimates the amount of stress caused to people walking or biking by traffic. Low LTS scores (LTS 1-2) indicate a relatively comfortable environment for people walking or biking while high LTS scores (LTS 3-4) indicate a less comfortable environment. LTS 4, which represents the highest stress caused to people walking or biking and therefore the lowest comfort, represents an environment that is generally uncomfortable for even confident, adult people walking or biking. LTS scores are derived from a hybrid methodology that reflects the findings of *Low-Stress Bicycling and Network Connectivity* (Mekuria, Furth and Nixon, 2012) as well as Fehr & Peers' own research regarding additional important street design variables for understanding comfort for people walking and biking.

A variety of street design and operation variables affect LTS scores for people walking and biking.

- For people walking: walkway presence and dimensions; speed and volume of traffic; and presence and dimensions of a buffer, including landscape buffer, tree lawn, on-street parking or bike lane
- For people biking on-street: bikeway type and dimensions (shared travel lanes, bike lane, buffer bike lane, protected bike lane, etc.); speed and volume of traffic; and number of travel lanes
- For people biking off-street: if physically separated from vehicle traffic, off-street facilities all score LTS 1 for people biking off-street

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

Through the planning of Longmont's Enhanced Multi-use Corridors, the project team strived to achieve LTS 1 or 2 for all users on all EMUC segments. However, in some cases achieving a LTS 1 or 2 environment was not possible due to a variety of constraints such as available right-of-way, mature street trees, on-street parking supply or cost to relocate curb and gutter.



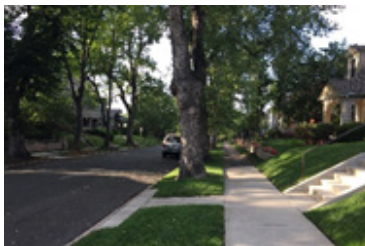
Protected bike lanes, multi-use trails and shared-use sidewalks are typically LTS 1 for people biking, since people biking are physically separated from vehicles. People walking can share space with people biking on multi-use trails and shared-use sidewalks if sufficient width is provided.



Bike lanes and buffered bike lanes range in LTS depending on their dimensions and other street design and operation characteristics. Bike lanes or buffered bike lanes on low-volume, low-speed streets are often LTS 1 while bike lanes or buffered bike lanes on high-volume, high-speed streets can be LTS 3 or LTS 4.



Shared travel lanes range in LTS depending on traffic volume and speed. Low-volume, low-speed streets can be LTS 1; however, higher-volume, higher-speed streets easily become LTS 3 or LTS 4 given the lack of separation between people biking and vehicles.



Sidewalks range in LTS depending on their width, buffer from moving vehicles, and traffic volume and speed. Sidewalks that are sufficiently wide and have a landscape buffer often achieve LTS 1.

COST METHODOLOGY

The project team prepared cost estimates for each Enhanced Multi-use Corridor. These estimates were prepared based on the proposed design for each EMUC section, reflected in the cross-section and plan view diagrams throughout this plan. The categories of improvements considered in the cost estimates are: demolition, signage and pavement markings, concrete hardscape and landscaping. Where possible, values for unit costs were obtained from the Colorado Department of Transportation (CDOT) 2017 Cost Data Book. The cost estimates include markups for contingency (20 percent, based on the conceptual nature of this plan), contractor overhead and profit (8 percent) and mobilization (5 percent).

IMPLEMENTATION

The City of Longmont will implement Enhanced Multi-use Corridors using a variety of funding sources. These will include a diversity of local, regional, state and federal funding sources.

In many cases, proposed designs may be accommodated as a part of regular street reconstruction (or, maintenance) or as properties along a corridor develop or redevelop. In some cases, new streets will be built to the proposed design included in this plan.

Locally-funded projects are typically funded through the City's Capital Improvement Program or through the Street Fund Sales and Use Tax, a $\frac{3}{4}$ -cent sales tax most recently renewed in 2014. Where Enhanced Multi-use Corridor projects are eligible for funding from outside agencies (such as Boulder County, the Colorado Department of Transportation or the Federal Highway Administration), the City may use local funding to meet local match requirements from outside agencies.

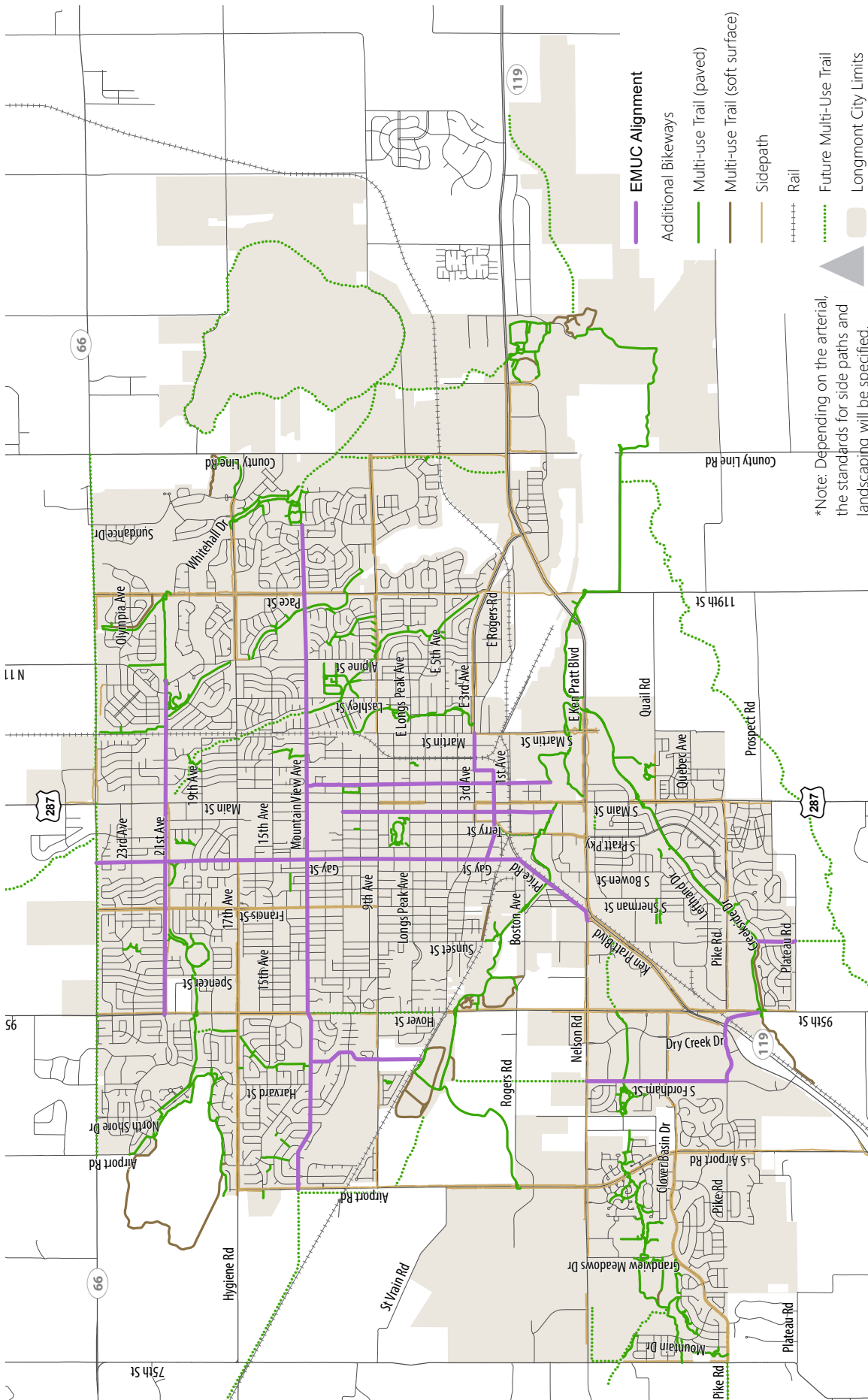
*Proposed
Designs*



2018



FIGURE 1: PROPOSED NETWORK OF EMUC CORRIDORS



*Note: Depending on the arterial, the standards for side paths and landscaping will be specified.



3RD AVENUE: COLLYER STREET TO MARTIN STREET

The proposed improvements to 3rd Avenue are shown in the cross-section and plan view in this section. The proposed improvements add wide sidepaths for people walking and biking with tree lawns on both sides of the street.

WHY IS THIS AN EMUC?

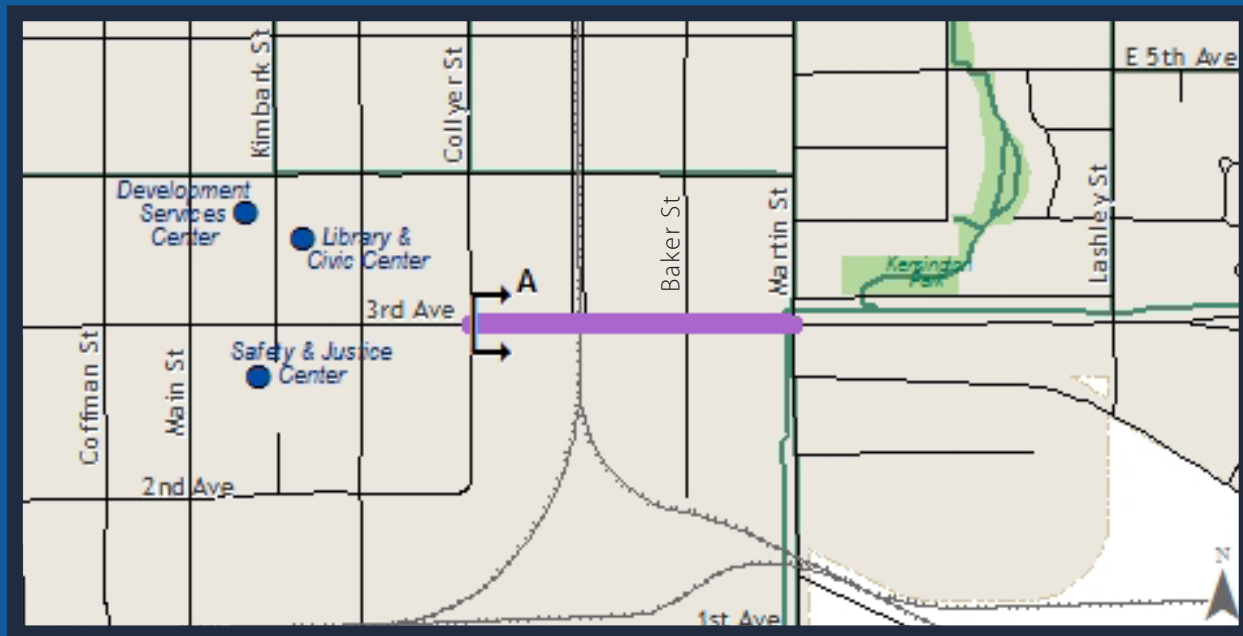
3rd Avenue is a short, east-west EMUC that is a part of a longer east-west facility through the heart of Longmont. East of Martin Street, it connects with other existing sidepaths on 3rd Avenue which connect to the Spring Gulch Greenway and Oligarchy Greenway, as well as Sandstone Ranch, the St. Vrain Greenway and the future Spring Gulch #2 Greenway extension. West of Collyer Street, it brings people south of downtown to connections with the St. Vrain Greenway, the future Dickens Farm Nature Area and the future 1st & Main Station. Currently, people walking and biking do not have a highly comfortable way of traveling east-west through downtown. 3rd Avenue also connects to the proposed EMUC on Emery Street.

TOTAL COST ESTIMATE

The total cost for 3rd Avenue is approximately \$500,000.

RIGHT-OF-WAY AND TRAFFIC VOLUME AND COST SUMMARY

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Collyer Street to Martin Street	94'	13,000	13,000	\$500,000

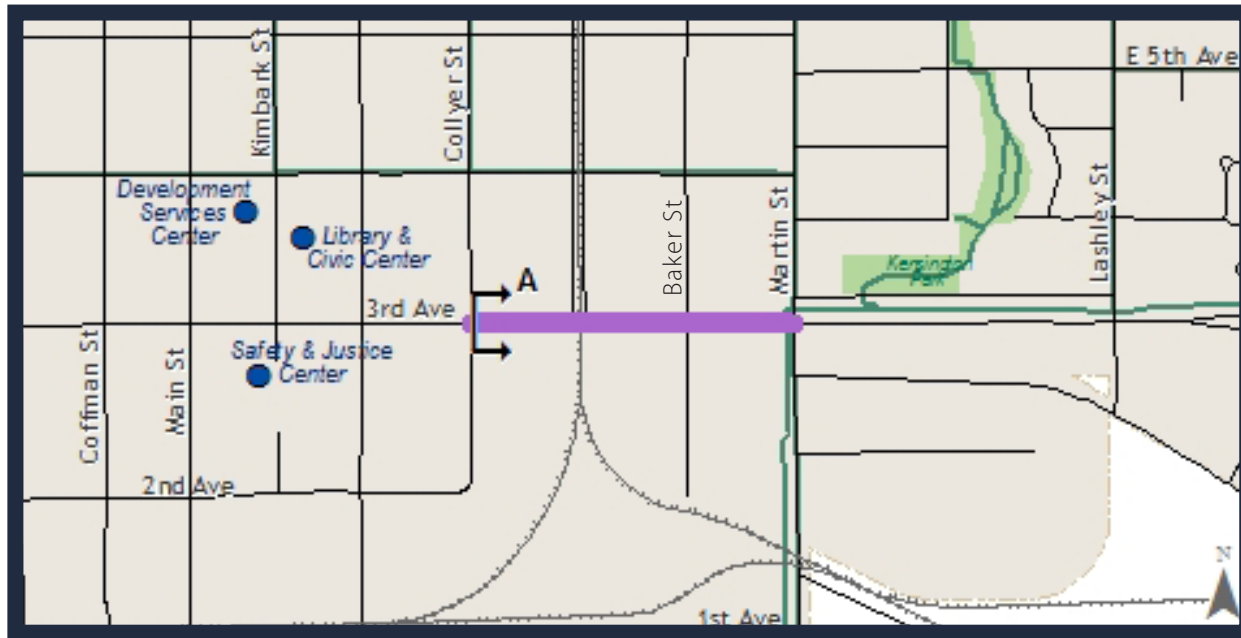


PROPOSED DESIGN

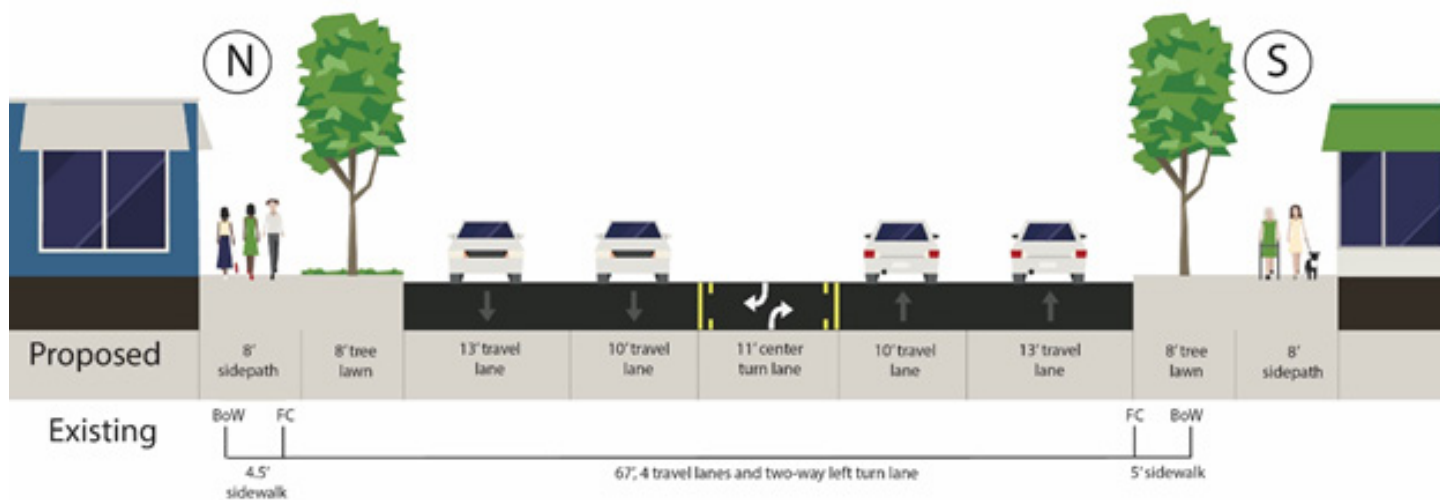
A cross-section view and plan view diagram for 3rd Avenue follow.

SECTION A: COLLYER STREET TO MARTIN STREET

Section Map

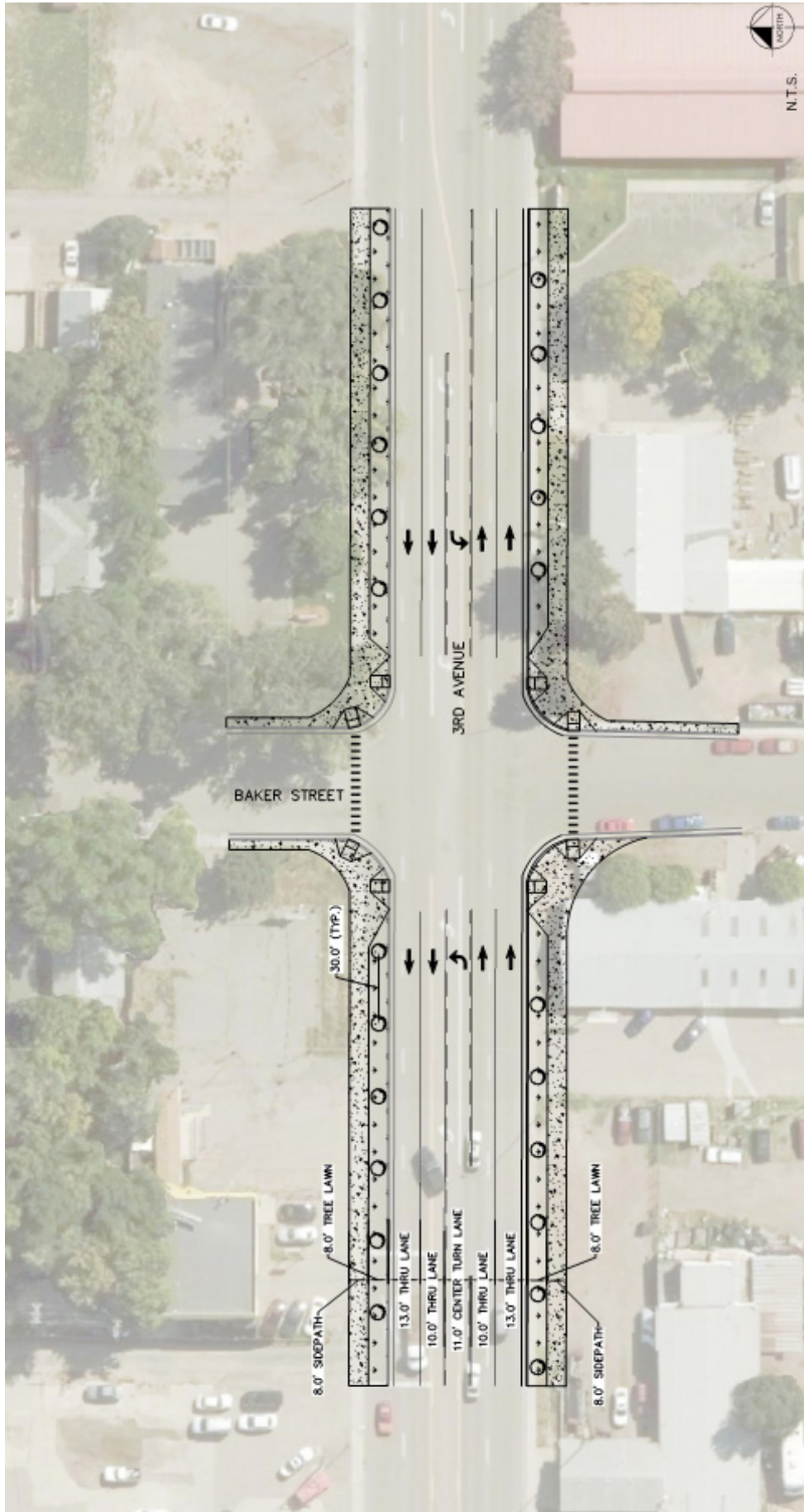


3rd Avenue Section A Design: Cross-section View



Right-of-way: 94 feet

3rd Avenue Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. 3rd Avenue: Section A is anticipated to cost \$500,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to relocating curb and gutter, widening sidewalks on both sides into sidepaths, and landscaping.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 3. With the proposed design, which adds 8-foot sidepaths with tree lawns on both sides, the LTS will improve to LTS 1. This represents a relatively comfortable environment for most people walking.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 4. The proposed design does not affect LTS for people biking on-street. An on-street bikeway would improve comfort for people biking on-street.

The existing and forecasted traffic volumes on 3rd Avenue (13,000 vehicles per day) make it a candidate for a reduction in travel lanes (from five lanes to three lanes), using remaining space for an on-street bikeway. Peak hour level of service analysis should be completed through the corridor’s design to understand whether an on-street bikeway, such as a protected bike lane, is appropriate.

For People Biking Off-street

No off-street bikeway currently exists on Section A. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

TRADEOFFS

The proposed corridor design for 3rd Avenue: Section A widens sidewalks on both sides into sidepaths with tree lawns. Although this widening occurs within the City’s right-of-way, the new sidepaths will extend beyond the existing back-of-walk.

The sidepath and tree lawn on the north side are likely a higher priority than the sidepath and tree lawn on the south side as there is already an existing sidepath on the north side of 3rd Avenue east of Martin Street. By moving the curb and gutter on the north side, widening beyond the existing back-of-walk on the north side will be relatively minimal (approximately a few feet).

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

The curb and gutter on the south side is expected to stay in its current location so more extensive widening beyond the existing back-of-walk on the south side can be expected. Although most structures are beyond the extents of widening, the proposed sidepath and tree lawn may need to be narrowed in some locations to avoid impacts to structures. Additionally, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design, such as off-street parking. Further feasibility study and design is necessary to determine whether redevelopment is required to implement the proposed design on the south side of 3rd Avenue.

The proposed design narrows outside travel lanes from 17 feet (including curb and gutter) to 13 feet (including curb and gutter); inside travel lanes are 10 feet wide. This should cause a desirable reduction in operating speeds on 3rd Avenue. The proposed design also removes parking from both sides of the street. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on 3rd Avenue suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor's design.



21ST AVENUE: HOVER STREET TO ALPINE STREET

The proposed improvements to 21st Avenue are shown in the cross sections and plan views in this section. The proposed improvements generally establish continuous bike lanes or buffered bike lanes throughout the entire length of the corridor and a sidepath on the south side of 21st Avenue (with a landscape buffer in certain segments), in addition to other minor sidewalk widening.

WHY IS THIS AN EMUC?

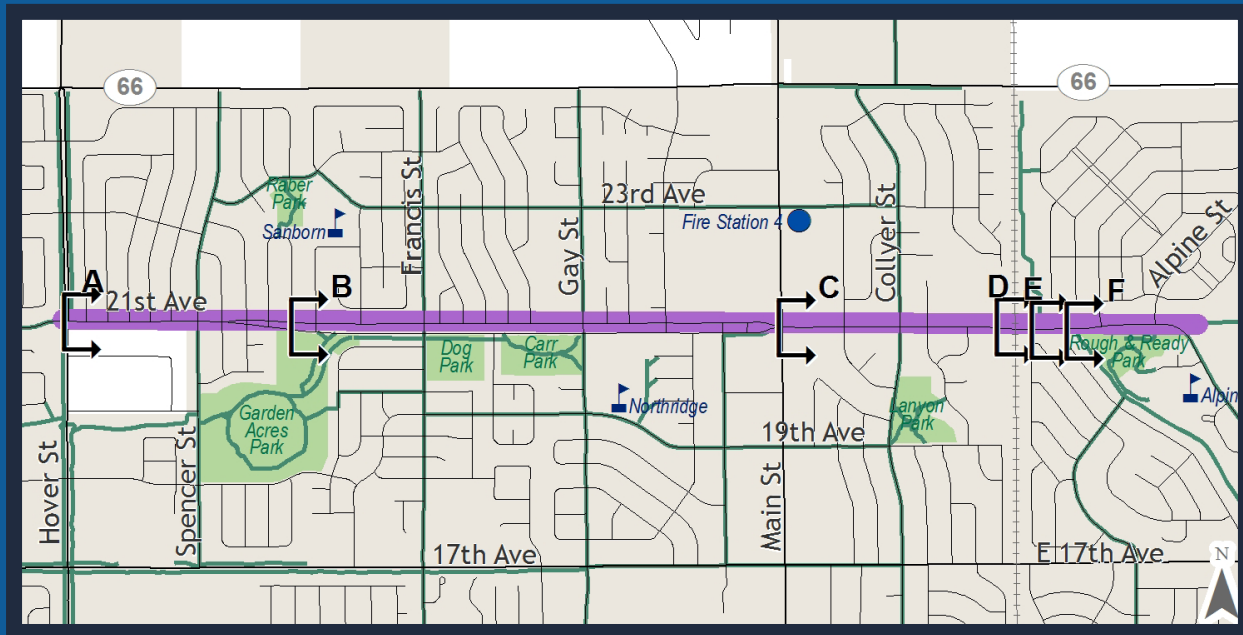
21st Avenue is an east-west EMUC in north Longmont that generally connects trails near McIntosh Lake District Park (via the Oligarchy Greenway Trail at Garden Acres) to the Union Reservoir Recreation Area. Between Hover Street and Alpine Street, it provides direct connectivity to several parks: Garden Acres Park, Carr Park, Dog Off Leash Area #1 and Rough & Ready Park. It is also proximate to three schools: Sanborn Elementary, Northridge Elementary and Alpine Elementary. It provides direct connectivity to US 287/Main Street and the North Main commercial district, including restaurants, shopping centers, RTD transit stops and the US 287 & 21st Avenue Park-n-Ride. The presence of utility easements, including for electric power transmission lines from Hover Street to Spencer Street and the Oligarchy Ditch from Daley Drive to Main Street, make this an attractive street for sidepaths or multi-use trails.

TOTAL COST ESTIMATE

The total cost for 21st Avenue is approximately \$2,600,000.

RIGHT-OF-WAY AND TRAFFIC VOLUME AND COST SUMMARY

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Hover Street to Hackberry Circle	75'-130'	5,500	6,300	\$600,000
Section B: Hackberry Circle to Main Street	130'-160'	10,300	7,500-9,200	\$1,600,000
Section C: Main Street to railroad	60'-70'	5,800	9,400	\$300,000
Section D: railroad to Mt Sneffels Street	70'	4,000	5,000	\$50,000
Section E: Mt Sneffels Street to Sunlight Street	60'	4,000	5,000	\$50,000
Section F: Sunlight Street to Alpine Street	60'	4,000	5,000	\$200,000

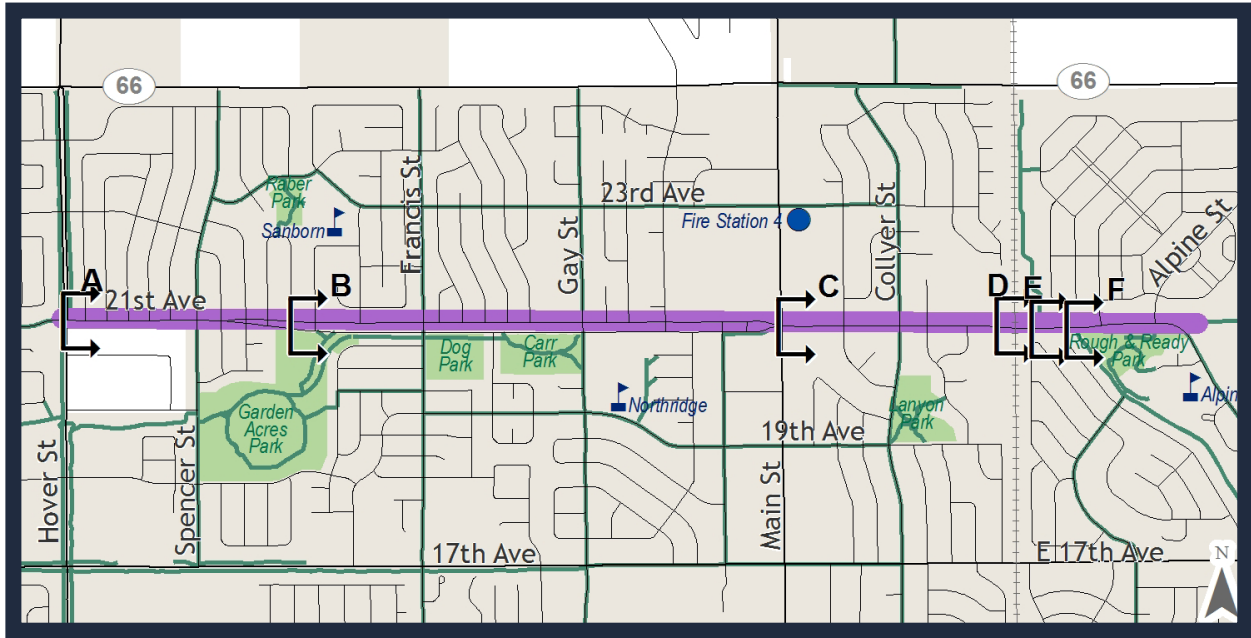


PROPOSED DESIGN

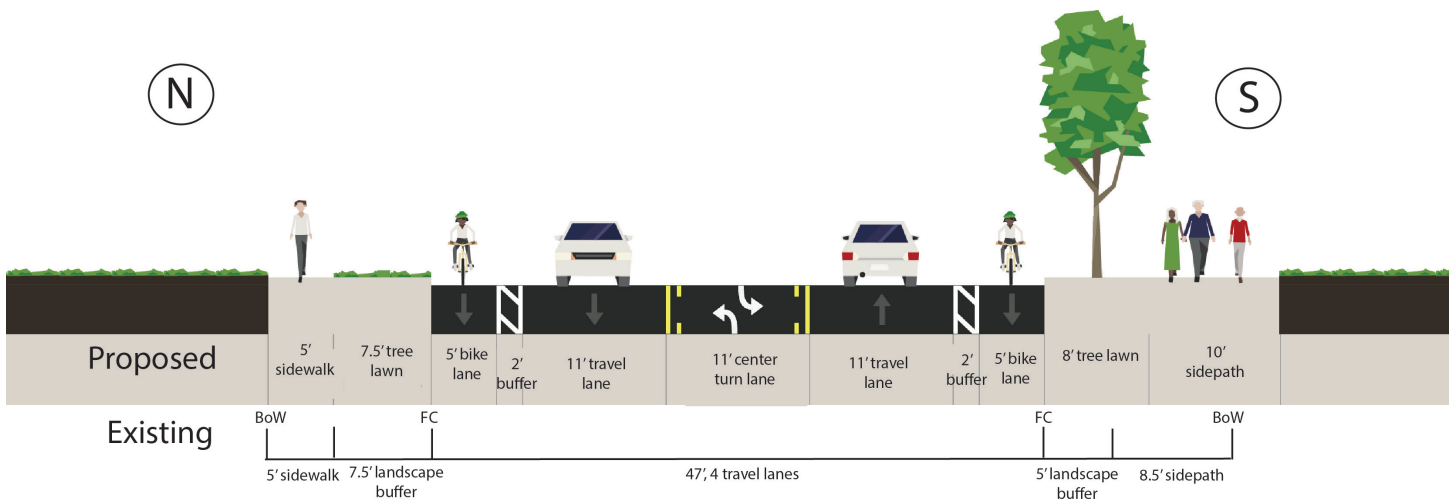
The corridor is comprised of various segments where the existing cross section changes significantly. Cross-section view and plan view diagrams for each segment follow.

SECTION A: HOVER STREET TO HACKBERRY CIRCLE

Section Map

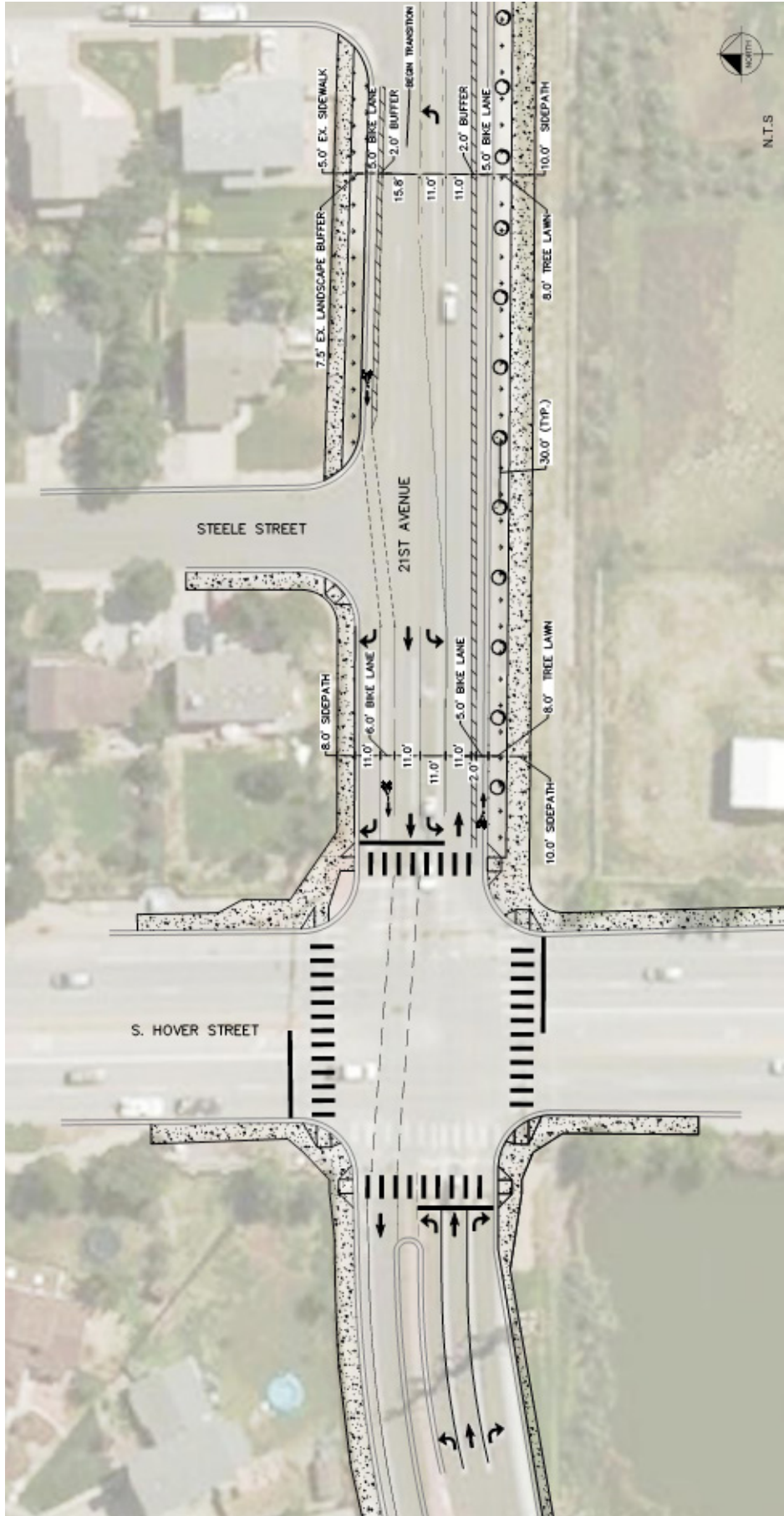


21st Avenue Section A Design: Cross-Section View



Right-of-way: 75-130 feet

21st Avenue Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. 21st Avenue: Section A is anticipated to cost \$600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to restriping the traveled way (removing and installing pavement markings), widening the sidepath on the south side of 21st Avenue and landscaping

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 2-3 (LTS 3 north side, LTS 2 south side). With the proposed design, the LTS on the south side will improve to LTS 1 resulting from the reduction in travel lanes and likely travel speeds, representing a highly friendly environment for people walking. The LTS on the north side is unchanged as no change is proposed to the sidewalk or landscape buffer.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 4. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

The existing LTS for people biking off-street in Section A is LTS 1, representing a highly friendly environment for people biking. There is no change in LTS resulting from the proposed design; however, the widened sidepath will result in fewer potential conflicts between path users.

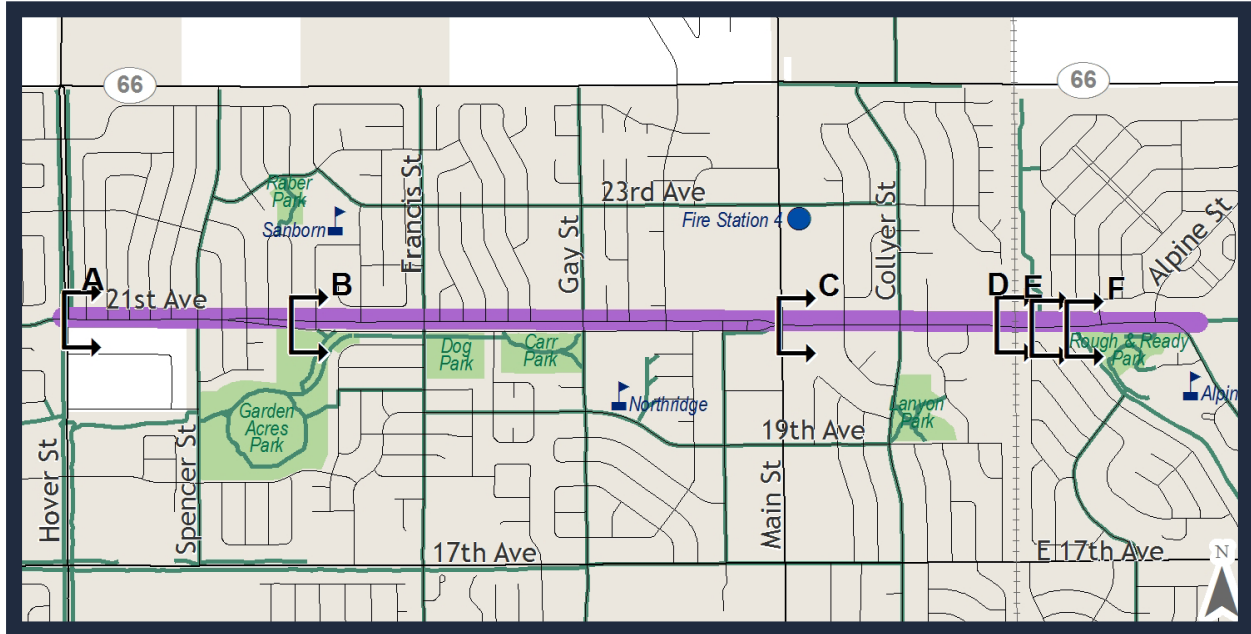
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

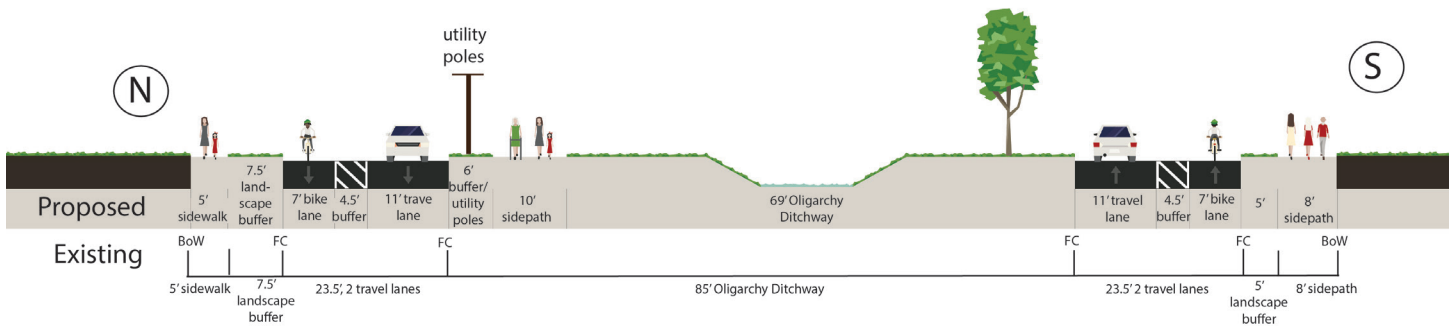
The proposed corridor design for 21st Avenue: Section A converts the four travel lanes on 21st Avenue (two in each direction) to three lanes (one lane in each direction and a two-way left-turn lane). Such four-lane to three-lane conversions typically operate with minimal congestion up to approximately 15,000 vehicles per day. The forecasted (2040) average daily traffic on 21st Avenue: Section A is 6,300 vehicles per day, so it is very likely that the proposed corridor design will operate with minimal congestion. However, peak level of service analysis should be completed through the corridor’s design to ensure that operational tradeoffs are acceptable.

SECTION B: HACKBERRY CIRCLE TO MAIN STREET

Section Map

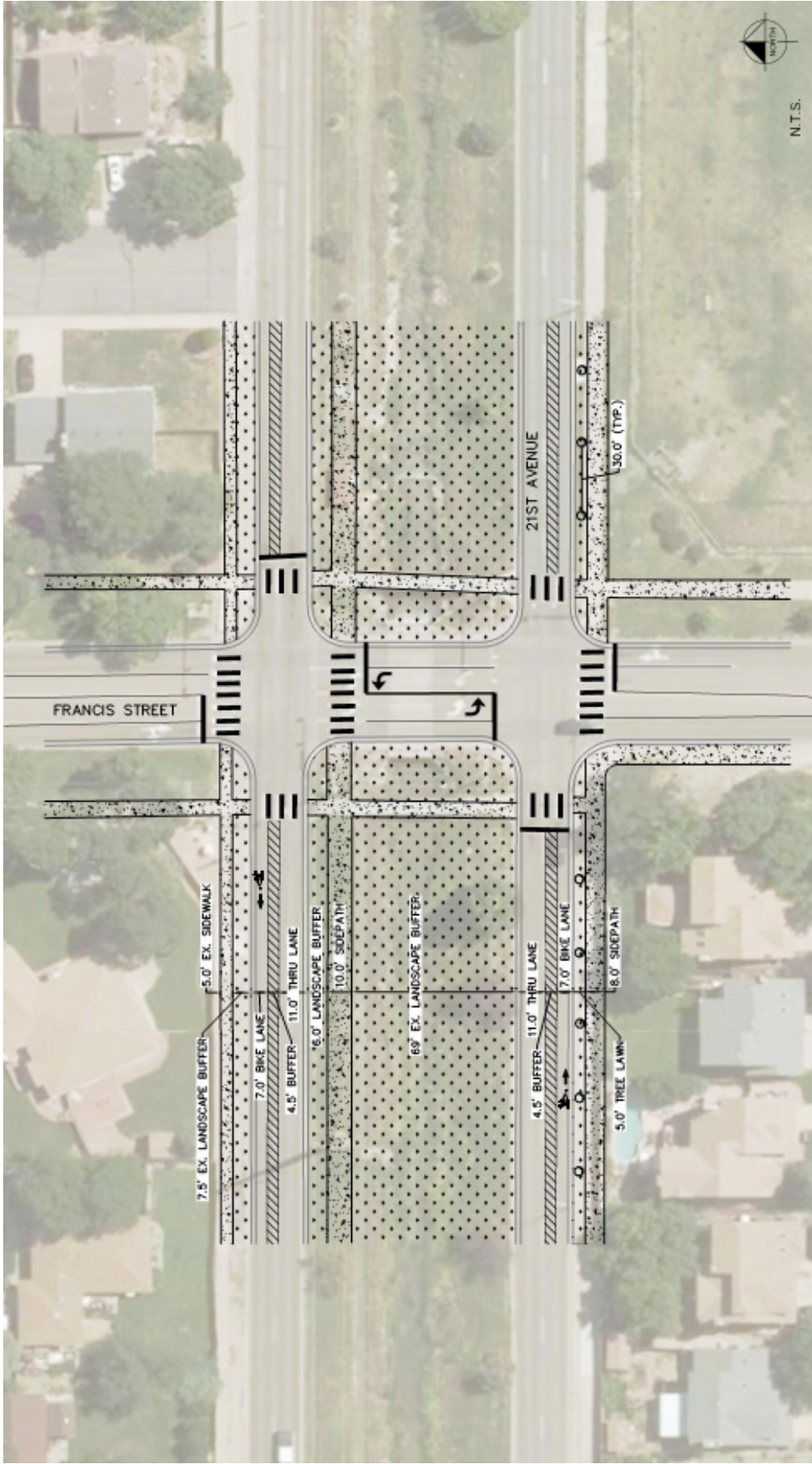


21st Avenue Section B Design: Cross-Section View



Right-of-way: 130-160 feet

21st Avenue Section B Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. 21st Avenue: Section B is anticipated to cost \$1,600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section B are related to restriping the traveled way (removing and installing pavement markings), constructing the new sidepath on the north side of Oligarchy Ditch and landscaping.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section B is LTS 2-3 (LTS 3 north side, LTS 2 south side). With the proposed design, the LTS on the south side will improve to LTS 1 resulting from the reduction in travel lanes and likely travel speeds, representing a highly friendly environment for people walking. The LTS on the north side is unchanged as no change is proposed to the sidewalk or landscape buffer.

For People Biking On-street

The existing LTS for people biking on-street in Section B is LTS 4. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

The existing LTS for people biking off-street in Section B is LTS 1, representing a highly friendly environment for people biking. There is no change in LTS resulting from the proposed design; however, the new sidepath along the Oligarchy Ditch is wider than the existing sidepath and will result in fewer potential conflicts between path users.

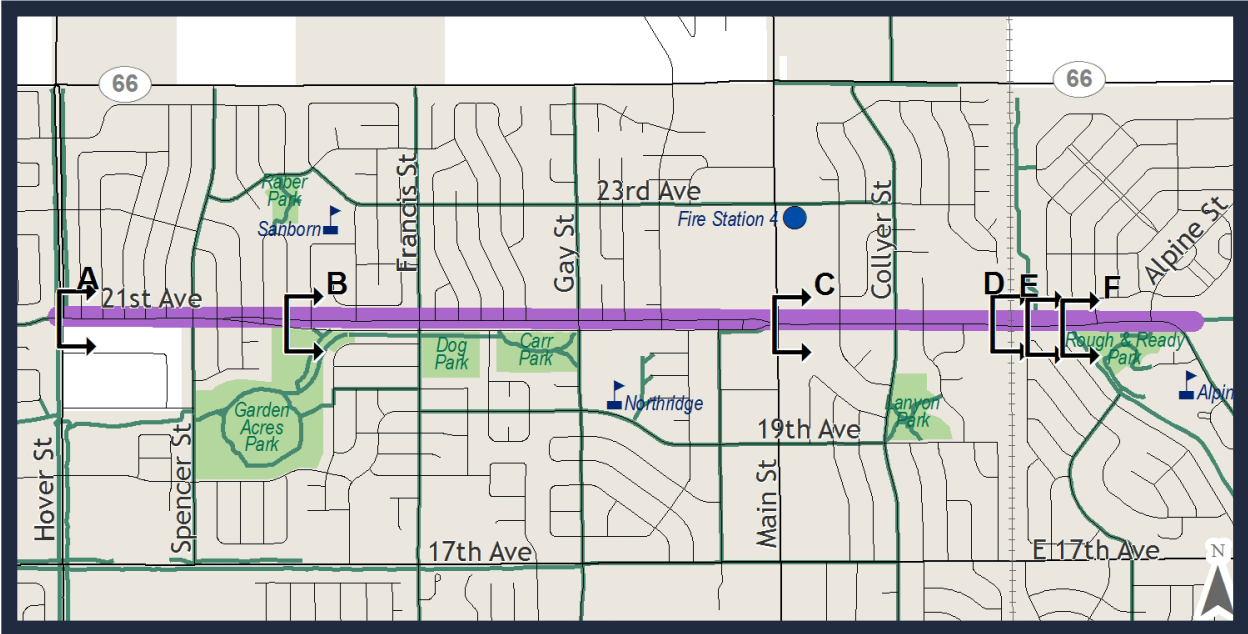
TRADEOFFS

The proposed corridor design for 21st Avenue: Section B converts the four travel lanes on 21st Avenue (two in each direction) to two lanes (one lane in each direction). Such four-lane to two-lane conversions typically operate with minimal congestion up to approximately 15,000 vehicles per day. The existing and forecasted (2040) average daily traffic on 21st Avenue: Section B ranges from 9,200 to 10,300 vehicles per day, so it is very likely that the proposed corridor design will operate with minimal congestion. However, peak level of service analysis should be completed through the corridor’s design to ensure that operational tradeoffs are acceptable.

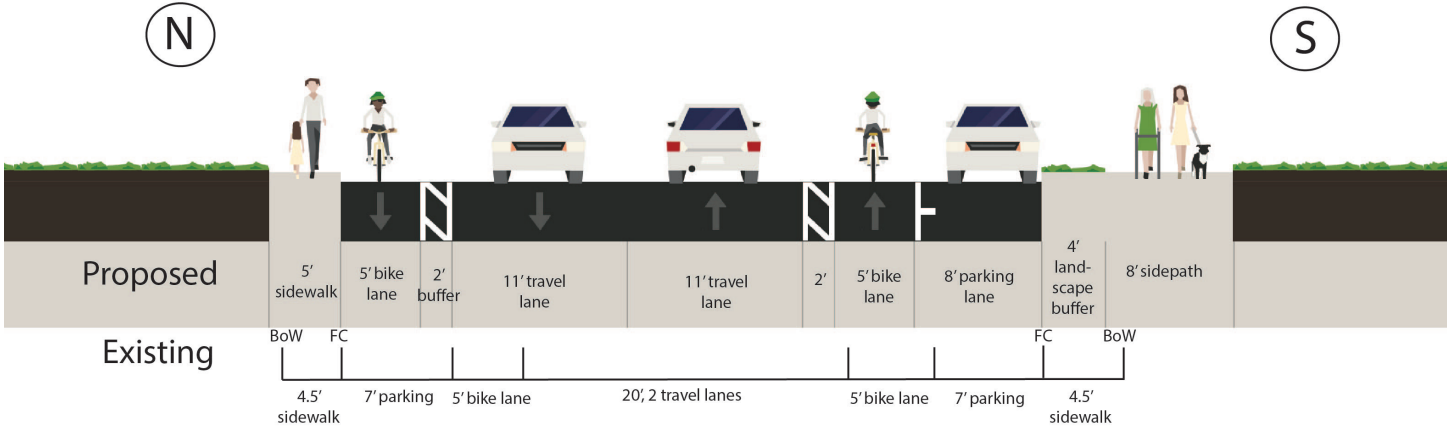
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

SECTION C: MAIN STREET TO RAILROAD

Section Map

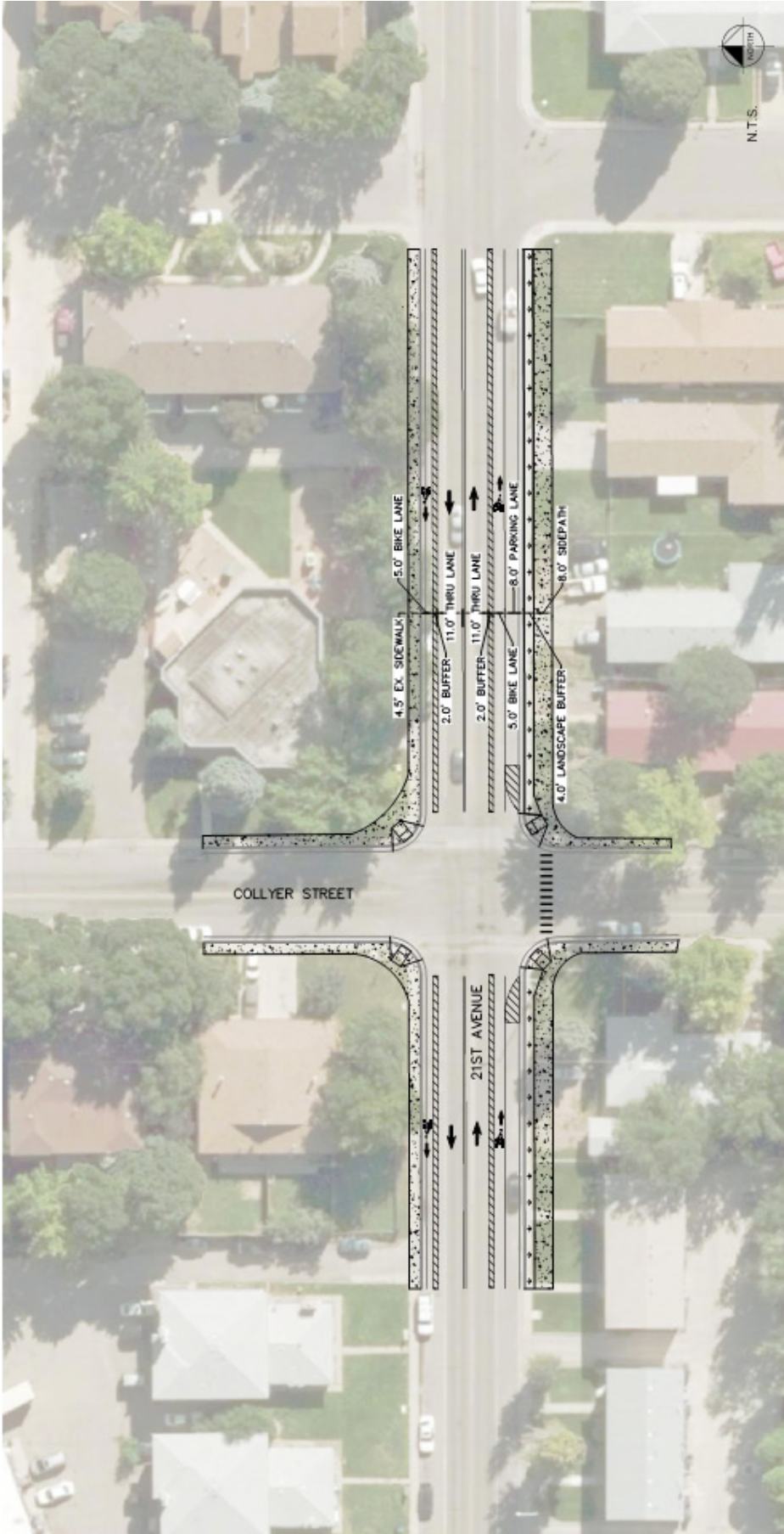


21st Avenue Section C Design: Cross-section View



Right-of-way: 60-70 feet

21st Avenue Section C Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. 21st Avenue: Section C is anticipated to cost \$300,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section C are related to restriping the traveled way (removing and installing pavement markings), widening the sidewalk on the north side, widening the sidepath on the south side of 21st Avenue and landscaping.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section C is LTS 3. With the proposed design, the LTS on the will improve to LTS 1-3 (LTS 1 on the south side, LTS 3 on the north side), resulting from widening the sidewalk on the south side. This represents a highly friendly environment for people walking. The LTS on the north side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section C is LTS 3. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section C. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

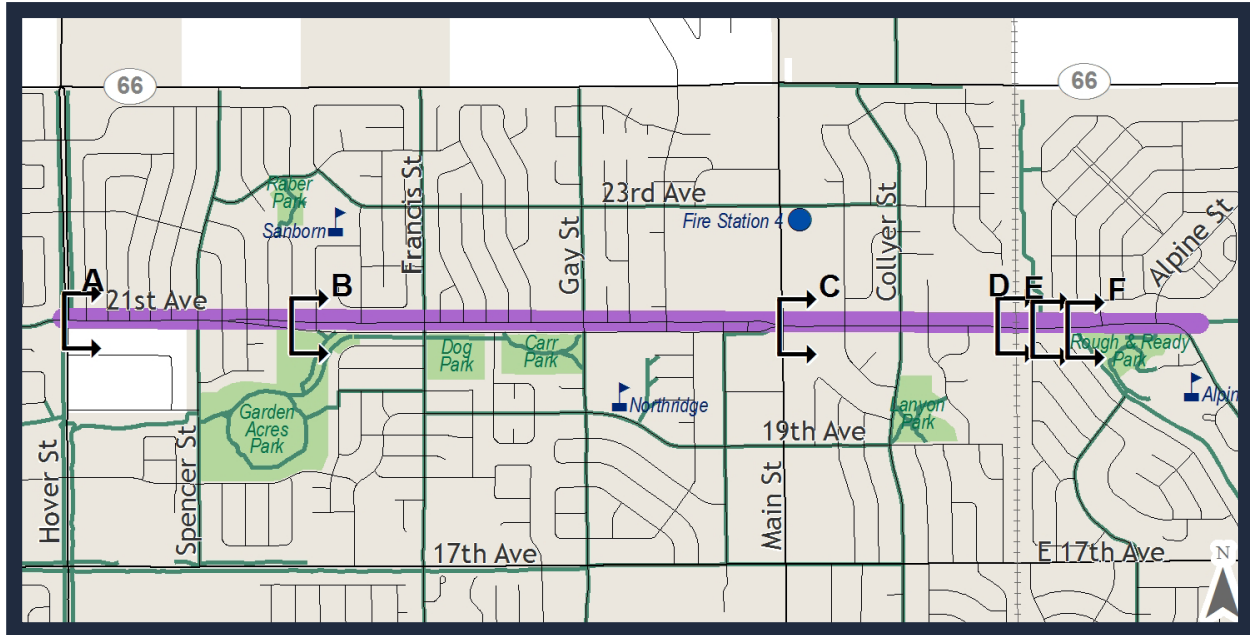
TRADEOFFS

The proposed corridor design for 21st Avenue: Section C repurposes on-street parking on the street’s north side to accommodate buffered bike lanes. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on 21st Avenue suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

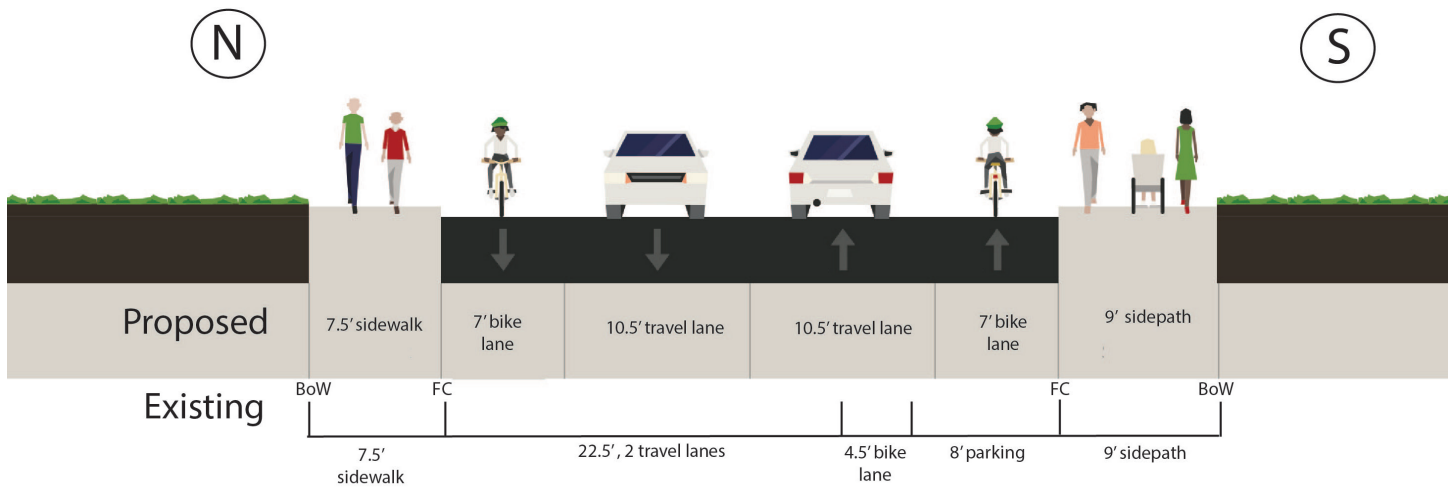
The proposed corridor design for 21st Avenue: Section C also widens sidewalks on both sides of the street. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. On the north side of the street, sidewalk widening is only by ½-foot and will be achieved where possible through city sidewalk rehabilitation maintenance. On the south side of the street, the existing 4.5-foot sidewalk is being replaced with a 8-foot sidewalk and 4-foot landscaped buffer, likely impacting improvements in the right-of-way such as landscaping and mailboxes, as well as some public utilities such as street lights.

SECTION D: RAILROAD TO MT SNEFFELS STREET AND SECTION E: MT SNEFFELS STREET TO SUNLIGHT DRIVE

Section Map



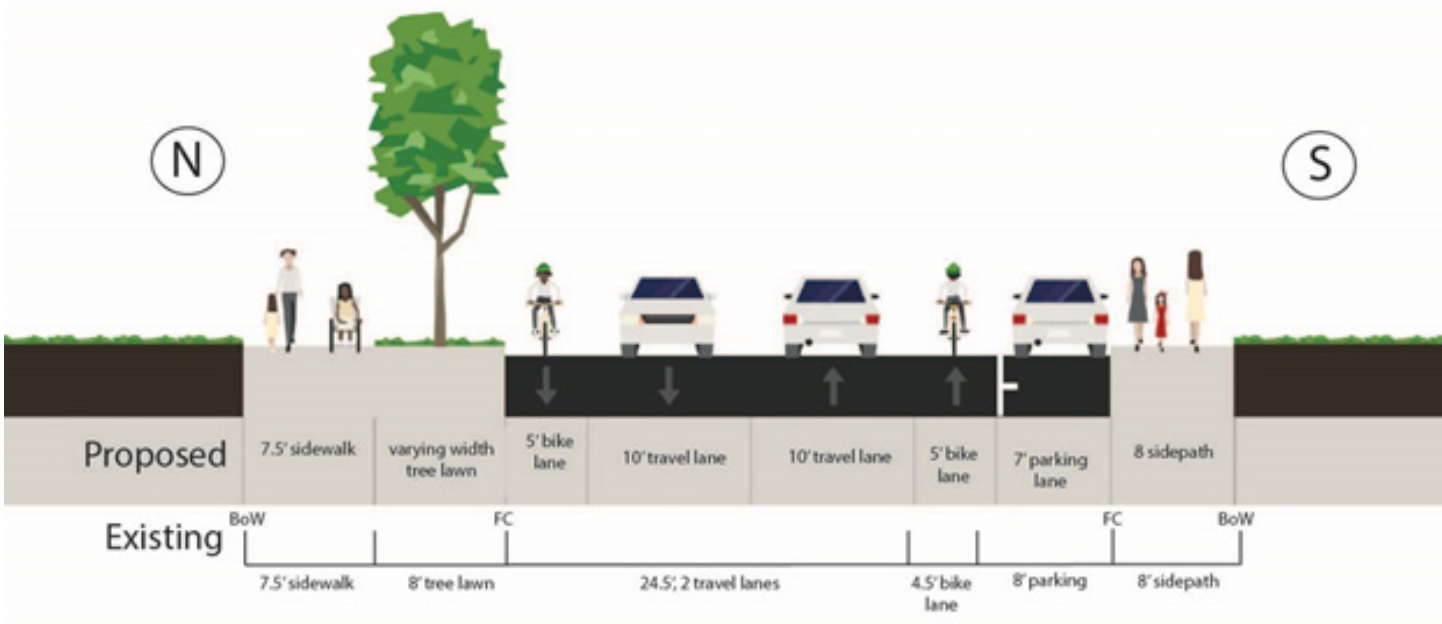
21st Avenue Section D Design: Cross-section View



Right-of-way: 70 feet

*Standard bike lanes are proposed in Section D rather than buffered bike lanes to transition to the standard bike lanes in Section E.

21st Avenue Section E Design: Cross-section View



Right-of-way: 60 feet

21st Avenue Sections D & E Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. 21st Avenue: Sections D and E are anticipated to cost \$100,000 (combined). Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Sections D and E are related to restriping the traveled way (removing and installing pavement markings) and minor sidewalk widening on both sides of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section D/E is LTS 2-3 (the north side of Section D is LTS 3, other portions of these sections are LTS 2). With the proposed design, the LTS on the will improve to LTS 2 resulting from the introduction of a bike lane that buffers the sidewalk from adjacent traffic. This represents a relatively comfortable environment for most people walking. Elsewhere the LTS is unchanged.

For People Biking On-street

The existing LTS for people biking on-street in Section D and E is LTS 2-3. With the proposed design, the LTS will improve to LTS 1 in Section D, representing a highly friendly environment for people biking. The LTS in Section E will be unchanged as the bike lane width in Section E is only 5 feet, which is allowable but minimal.

For People Biking Off-street

The existing off street bikeway on the north side of Section D is currently LTS 1. The proposed design will implement a continuous sidepath on the south side of 21st Avenue, resulting in LTS 1 continuously through Section D and Section E.

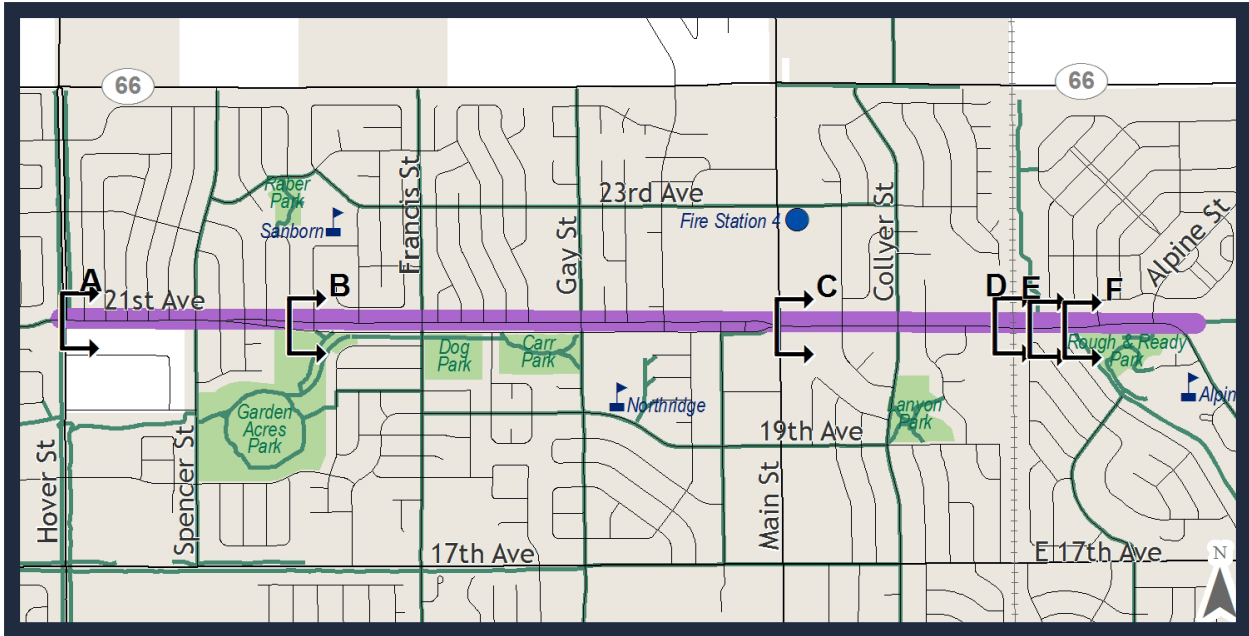
TRADEOFFS

The proposed corridor design for 21st Avenue: Sections D and E widens sidewalks on both side of the street. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. Sidewalk widening is expected to be minor. Continuous segments should only be widened by ½-foot and will be achieved where possible through city sidewalk rehabilitation maintenance. In other cases, widening will occur in railroad right-of-way or utility easements. Although construction in these rights-of-way present complications in design and permitting, the outcome tradeoffs in these areas are likely acceptable.

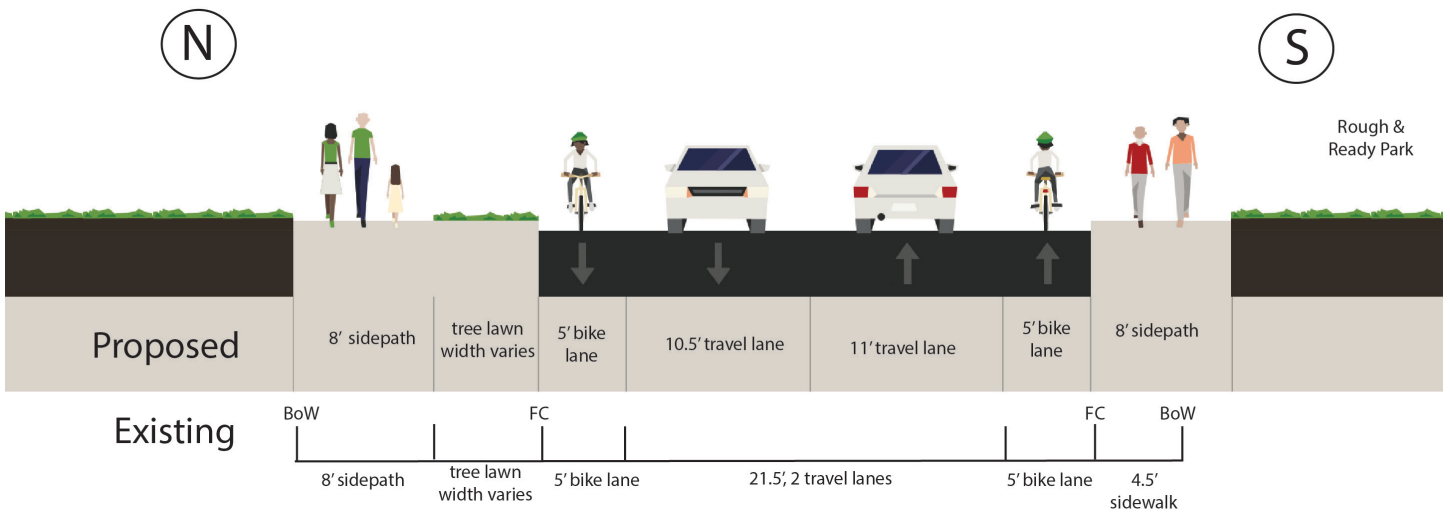
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

SECTION F: SUNLIGHT DRIVE TO ALPINE DRIVE

Section Map

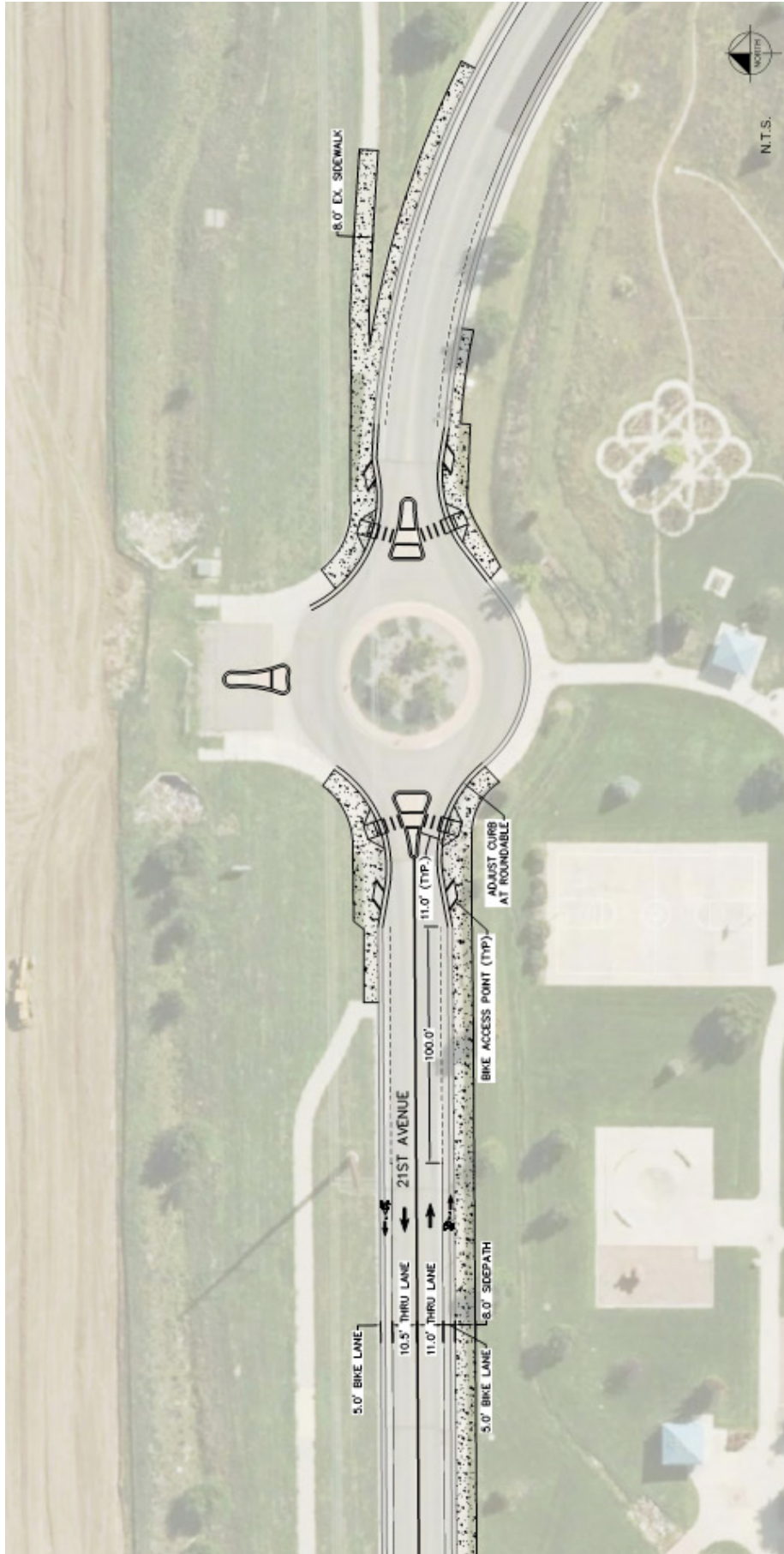


21st Avenue Section F: Cross-section View



Right-of-way: 60 feet

21st Avenue Section F: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. 21st Avenue: Section F is anticipated to cost \$200,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section F are related to widening the sidepath on the south side of 21st Avenue.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section F is LTS 1-3 (LTS 1 on the north side, LTS 3 on the south side). With the proposed design, the LTS on the will improve to LTS 1-2 (LTS 1 on the north side, LTS 2 on the south side), resulting from widening the sidewalk on the south side. This represents a relatively comfortable environment for most people walking.

For People Biking On-street

The existing LTS for people biking on-street in Section F is LTS 2. The proposed design does not affect LTS for people biking on-street.

For People Biking Off-street

The existing off street bikeway on the north side of Section F is currently LTS 1. The proposed design will implement a continuous sidepath on the south side of 21st Avenue, resulting in LTS 1 continuously through Section F.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

The proposed corridor design for 21st Avenue: Section F widens sidewalks on the south side of the street, from 4.5 feet to 8 feet. This sidewalk widening is within Rough & Ready Park, so no adjacent private property will be impacted although some public utilities such as street lights may need to be relocated.



DRY CREEK DRIVE: S FORDHAM STREET TO SIDEPATH AT SH 119

The proposed improvements to Dry Creek Drive are shown in the cross-section and plan view in this section. The proposed improvements include narrowing of travel lanes to add a buffer to the existing bike lanes.

WHY IS THIS AN EMUC?

Dry Creek Drive is a short, east-west EMUC that connects the EMUC on Fordham Street to the undercrossing of SH 119 west of Hover Street, providing broader connectivity to sidepaths along Ken Pratt Boulevard, SH 119 and Hover Street, the Left Hand Greenway and the LoDo Trail which connects Longmont to Boulder. Additionally, Dry Creek Drive is proximate to many significant Longmont employers, including healthcare-related employers.

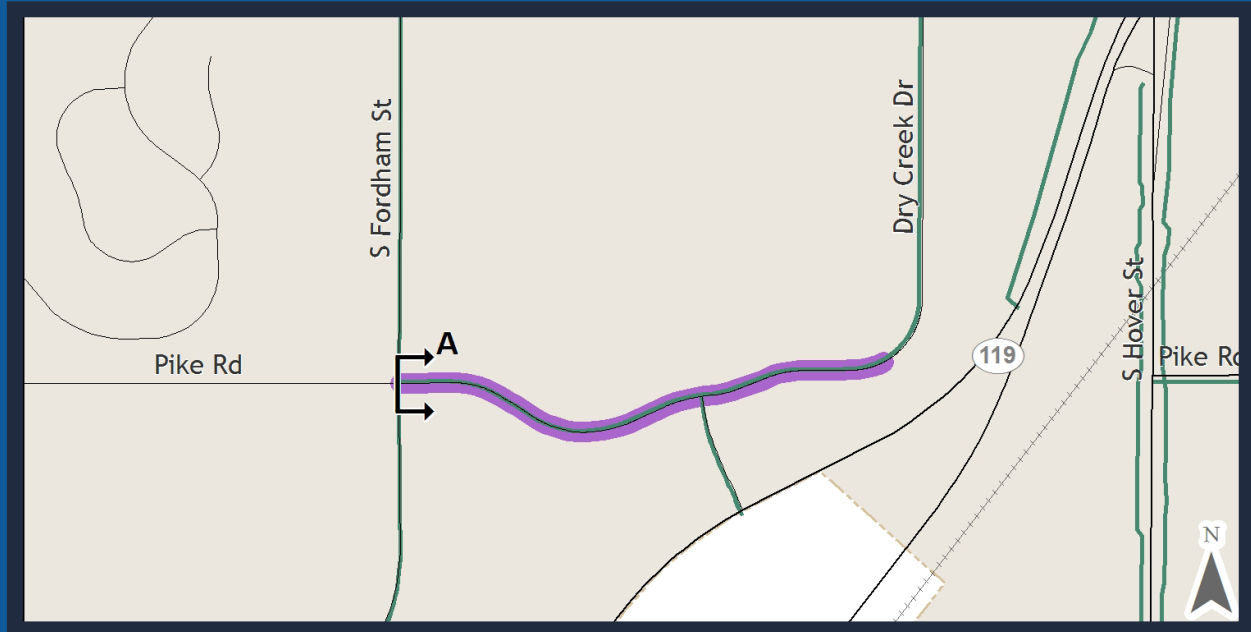
Dry Creek Drive is designated as an EMUC due to the connections it provides to S Fordham EMUC and, ultimately, to the Left Hand Greenway.

TOTAL COST ESTIMATE

The total cost for Dry Creek Drive is approximately \$70,000.

RIGHT-OF-WAY, TRAFFIC VOLUME, AND COST SUMMARY

SECTION	RIGHT-OF-WAY	EXISTING VOLUME <small>(AVERAGE DAILY TRAFFIC-ADT)</small>	FORECASTED (2040) VOLUME <small>(AVERAGE DAILY TRAFFIC-ADT)</small>	COST
Section A: S Fordham Street to bike path under SH 119	57'	1,900	4,000	\$70,000

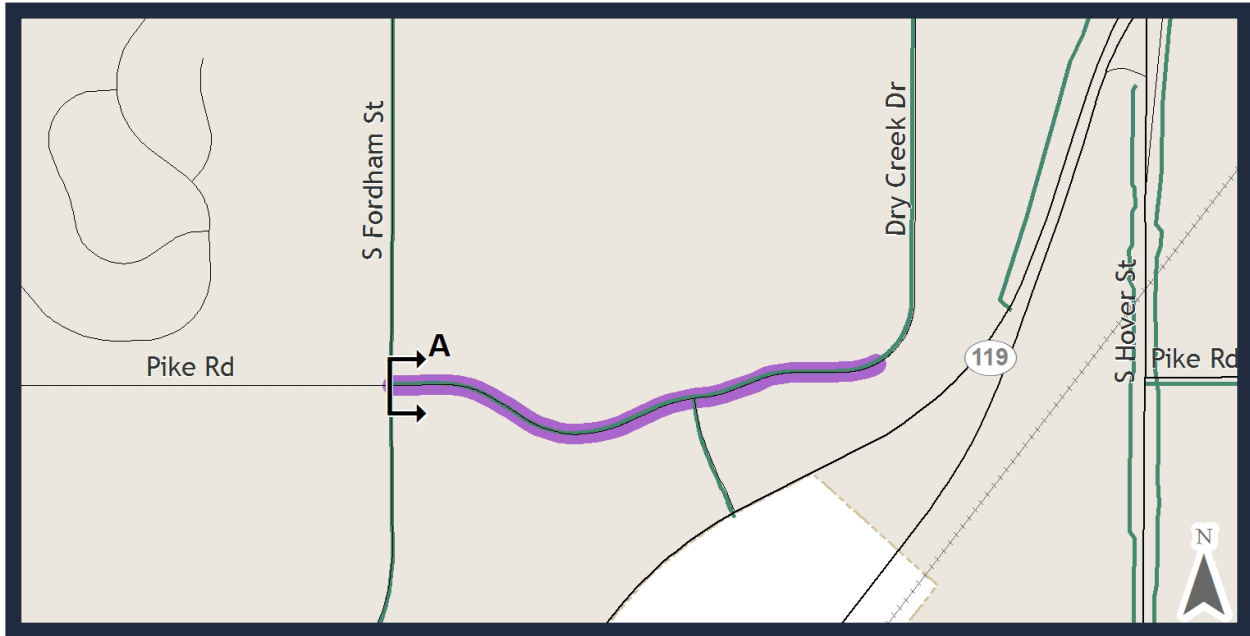


PROPOSED DESIGN

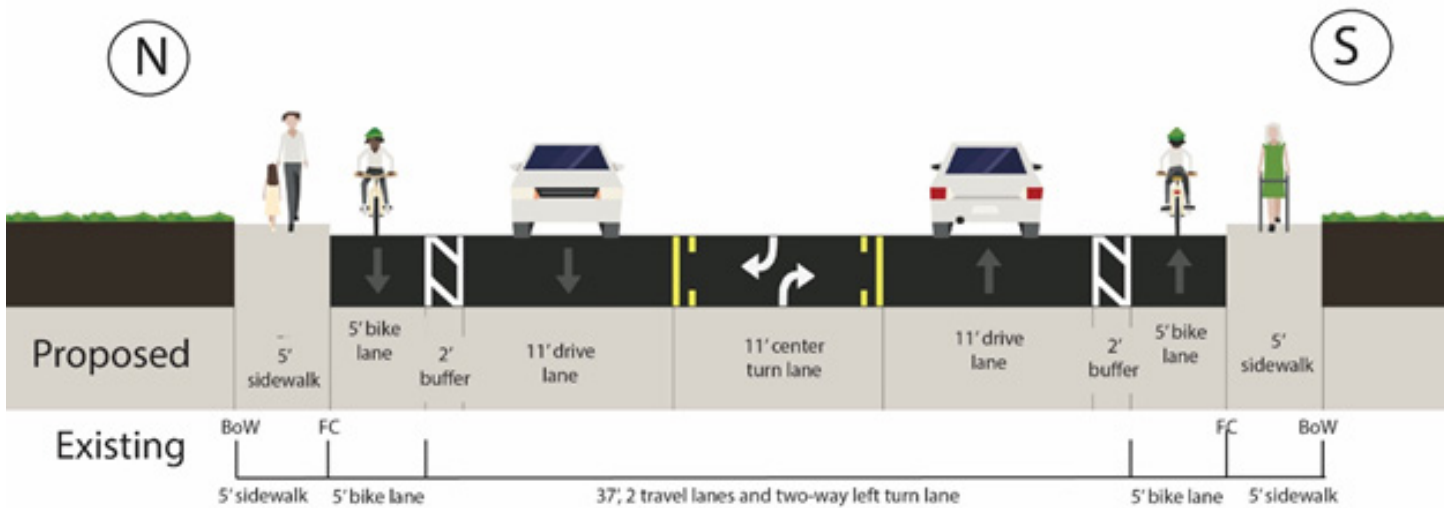
A cross-section view and plan view diagram for Dry Creek Drive follow.

SECTION A: SECTION A: S FORDHAM STREET TO SIDEPATH AT SH 119

Section Map

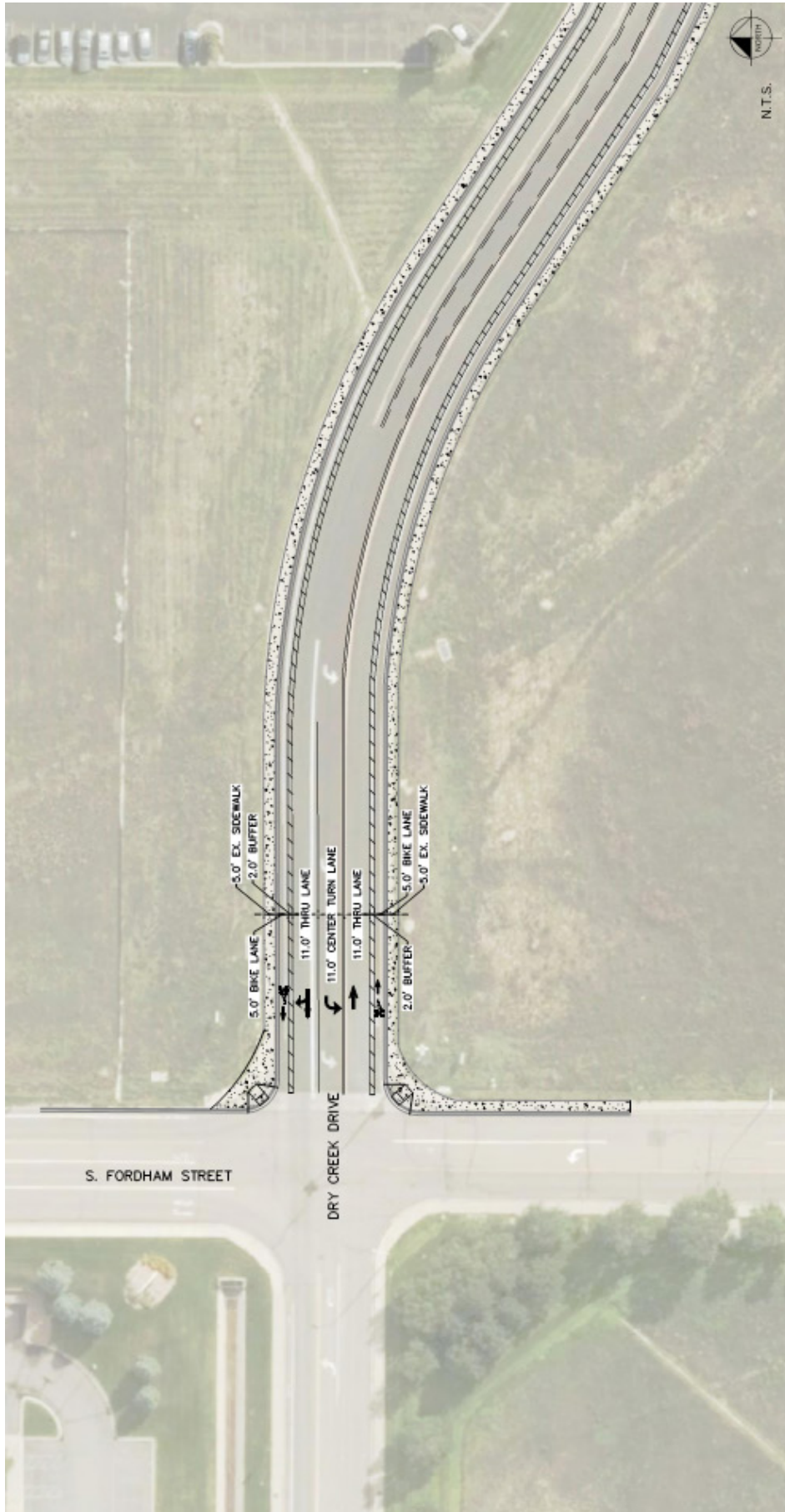


Dry Creek Drive Section A: Cross-section View



Right-of-way: 57 feet

Dry Creek Drive Section A: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Dry Creek Drive: Section A is anticipated to cost \$70,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to restriping the traveled way (removing and installing pavement markings).

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 2. The proposed design does not affect LTS for people walking.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 2. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently currently exists on Section A. The proposed design does not add an off-street bikeway.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

The proposed corridor design for Dry Creek Drive: Section A narrows travel lanes and the two-way left-turn lane to add a buffer to the existing bike lanes. The resulting travel and turn lane widths are within the range recommended by mainstream design guidance, so there is no significant tradeoff expected from this design.



EMERY STREET: MOUNTAIN VIEW TO ST. VRAIN GREENWAY

The proposed improvements to Emery Street are shown in the cross-sections and plan views in this section. The proposed improvements generally establish travel lanes shared for people biking and people driving (also known as a bicycle boulevard or neighborhood bikeway) and wider pedestrian facilities to accommodate a continuous, 8-foot sidepath along the corridor's entire length.

WHY IS THIS AN EMUC?

Emery Street is a north-south EMUC in east Longmont that generally connects the proposed EMUC on Mountain View Avenue to the St. Vrain Greenway and the planned Dickens Farm Nature Area. Although its south terminus is currently 1st Avenue, it is planned to extend to Boston Avenue and the St. Vrain Greenway with future development. It provides direct connectivity to Athletic Field Park and St. John the Baptist Catholic School and Columbine Elementary School is nearby. Additionally, both the Longmont Public Library and Longmont Civic Center are located on Emery Street between 3rd Avenue and 4th Avenue. Emery Street is 650-750 feet east of US 287/Main Street; given this proximity it can function both as a way to get to and from the many destinations in Downtown Longmont as well as an alternative route to US 287/Main Street for people biking north-south through Downtown and its adjacent residential neighborhoods.

TOTAL COST ESTIMATE

The total cost for Emery Street is approximately \$2,920,000.

OTHER IMPLEMENTATION CONSIDERATIONS

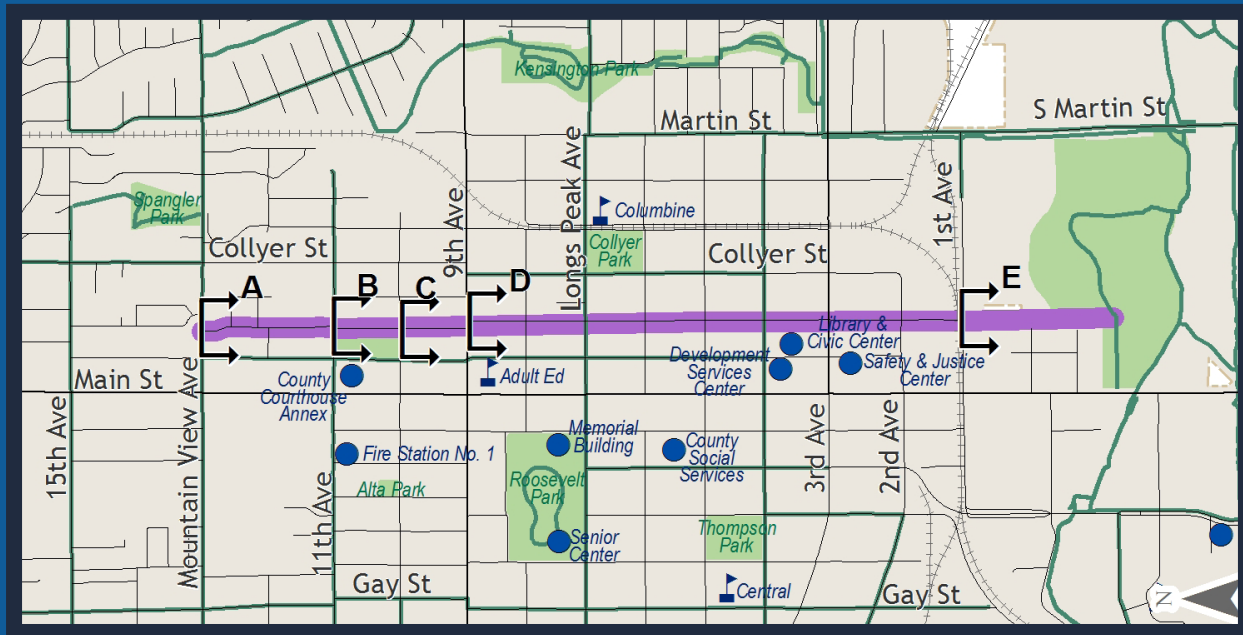
Emery Street crossings 9th Avenue and 3rd Avenue at unsignalized locations. As the number of people walking or biking on Emery Street increases in the future, consideration should be given to implementing crossing devices at 9th Avenue and 3rd Avenue to improve the continuity of Emery Street as an Enhanced Multi-use Corridor.

EMERY STREET: MOUNTAIN VIEW TO ST. VRAIN GREENWAY

RIGHT-OF-WAY AND TRAFFIC VOLUMES

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Mountain View Avenue to 11th Avenue	50'	500-800	500-800	\$200,000
Section B: 11th Avenue to 10th Avenue	60'	500-800	500-800	\$60,000
Section C: 10th Avenue to 9th Avenue	60'	500-800	500-800	\$60,000
Section D: 9th Avenue to 1st Avenue	100'*	700	700-1,000	\$2,600,000
Section E: 1st Avenue to Boston Avenue	100'	Unbuilt	1,000-2,000	NA

*The block from 1st Avenue to 2nd Avenue will have a reduced right-of-way resulting from new development.

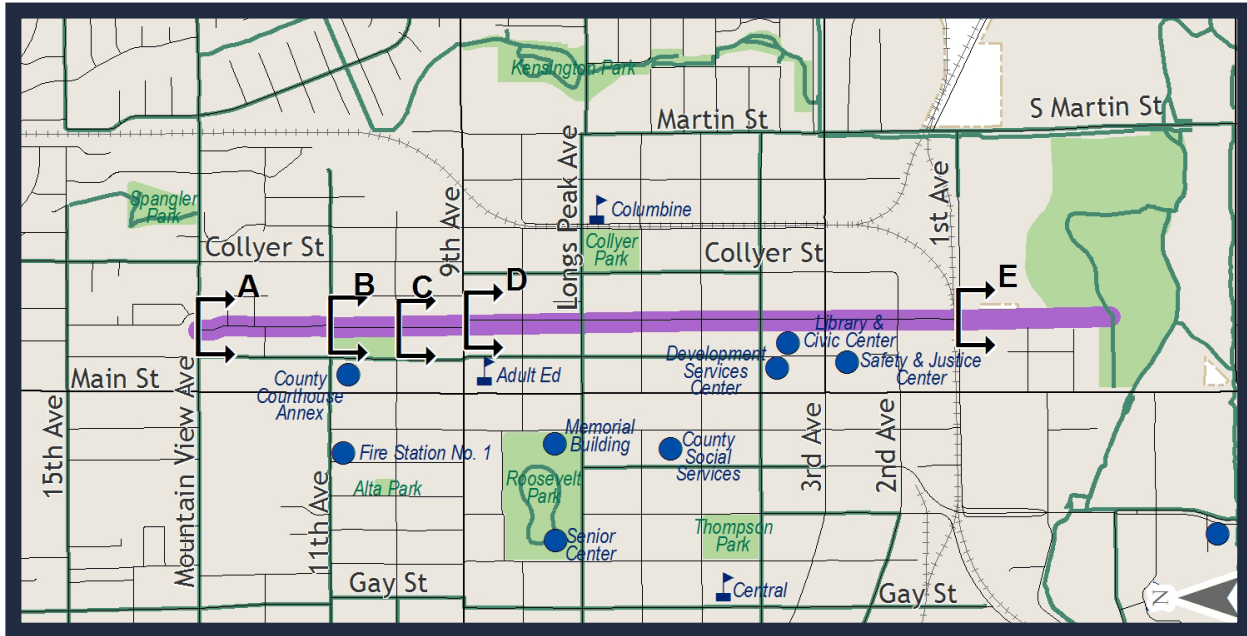


PROPOSED DESIGN

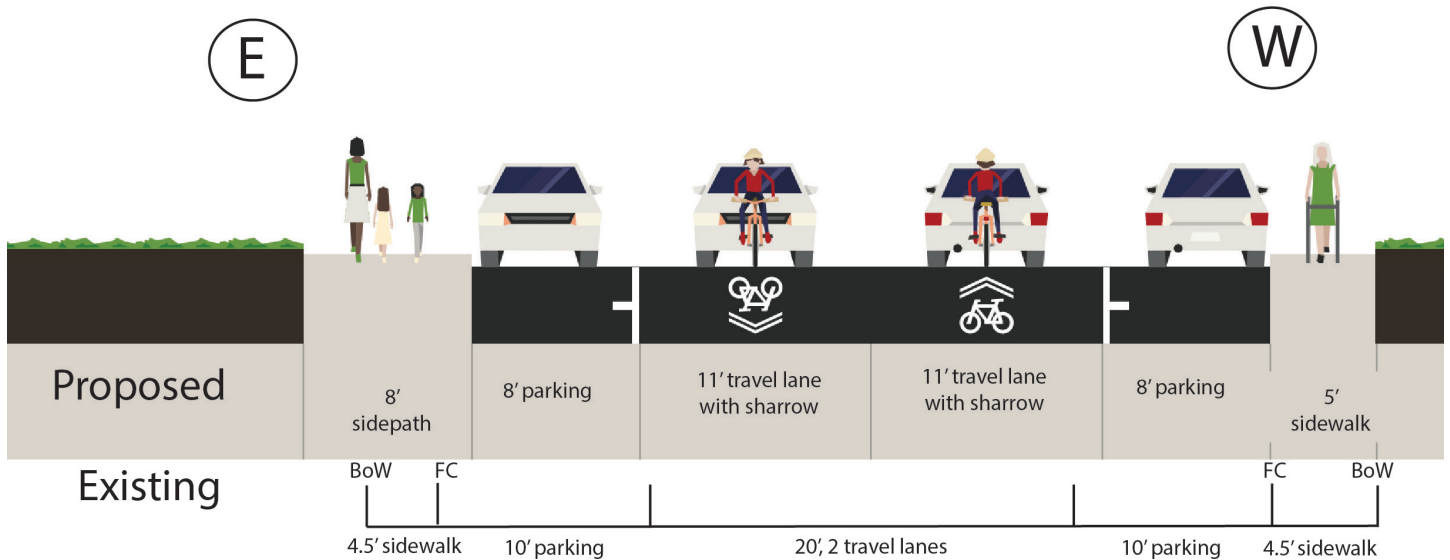
The corridor is comprised of various segments where the existing cross-section changes significantly. Cross-section view and plan view diagrams for each segment follow.

SECTION A: MOUNTAIN VIEW AVENUE TO 11TH AVENUE

Section Map

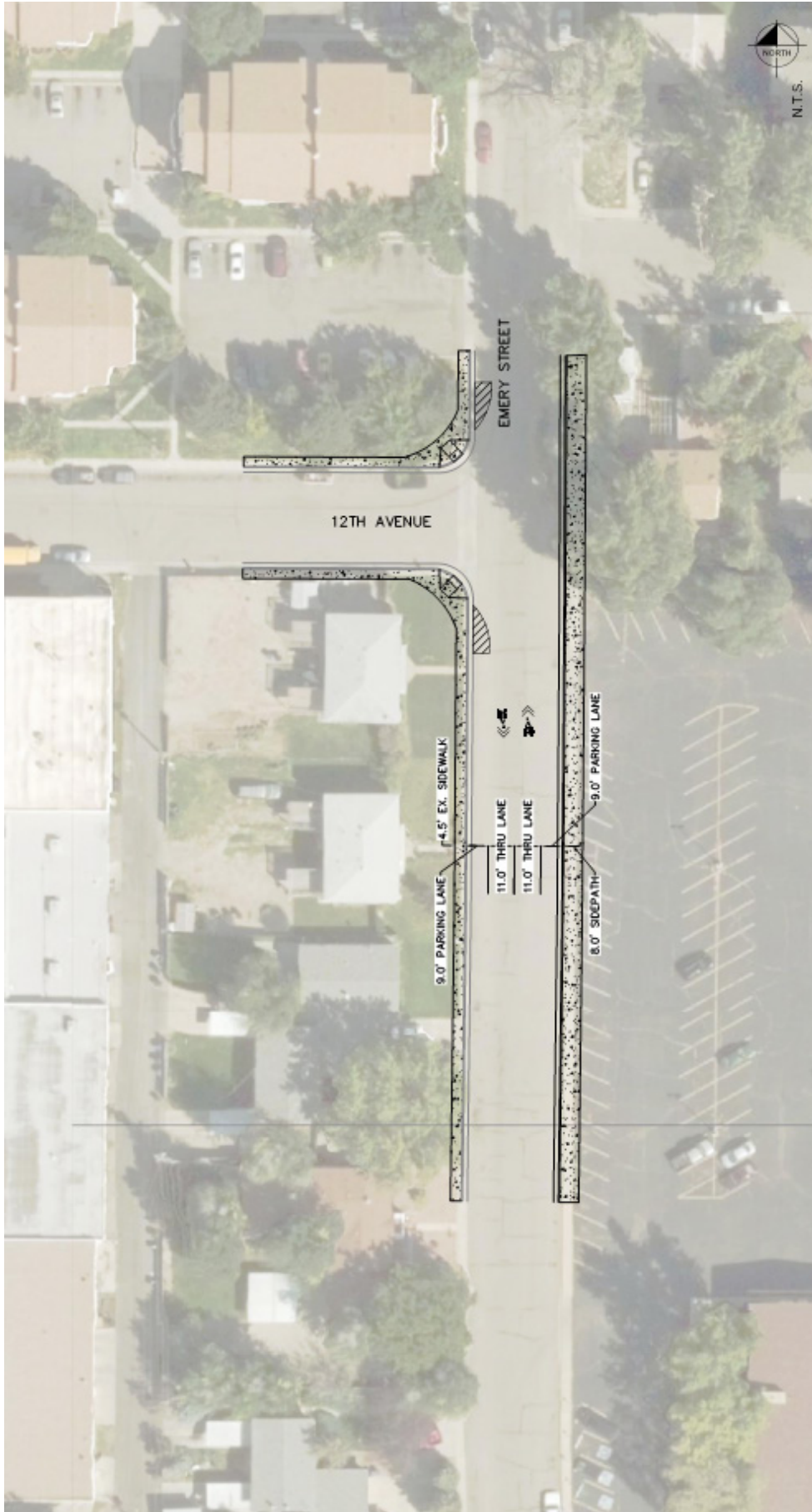


Emery Street Section A Design: Cross-section View



Right-of-way: 51 feet

Emery Street Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Emery Street: Section A is anticipated to cost \$200,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to restriping the traveled way (removing and installing pavement markings), relocating curb and gutter on the east side of Emery Street, sidewalk widening on the east side of Emery Street and minor sidewalk widening on the west side of Emery Street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 3. With the proposed design, the LTS will improve to LTS 2 on the east side of Section A, resulting from the widening of the sidewalk on the east side.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 2. The proposed design does not affect LTS for people biking on-street. Sharrows were recommended for this section to maintain on-street parking and to avoid impacts to improvements in the right-of-way behind the existing back-of-walk.

For People Biking Off-street

No off-street bikeway currently exists on Section A. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

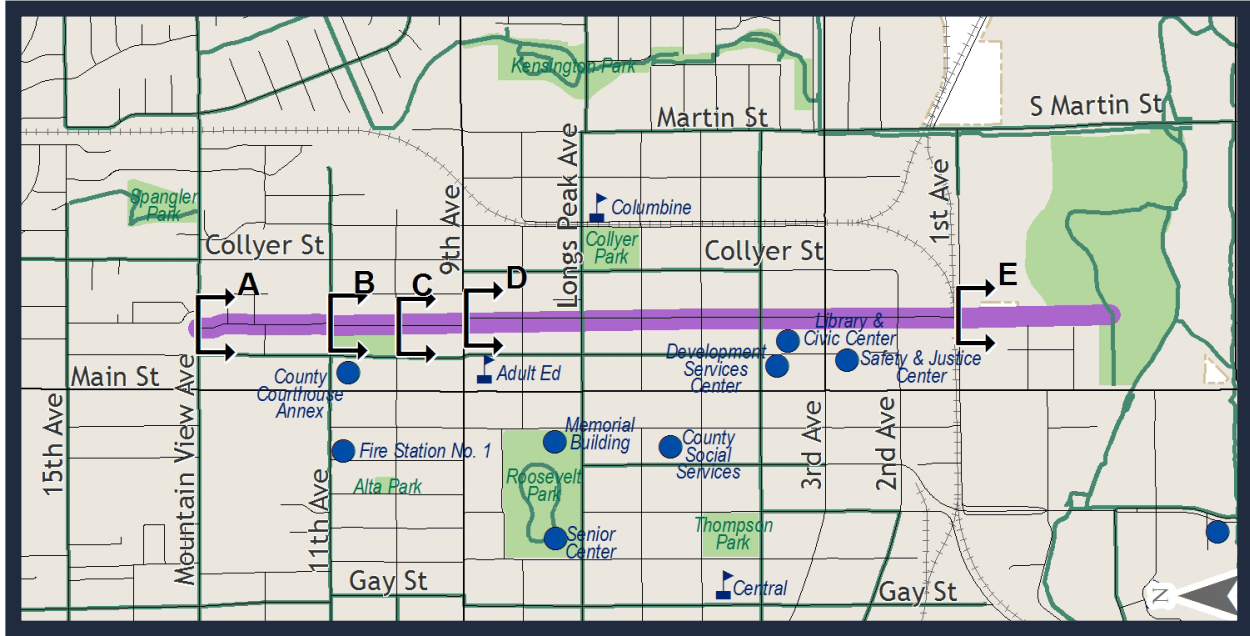
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

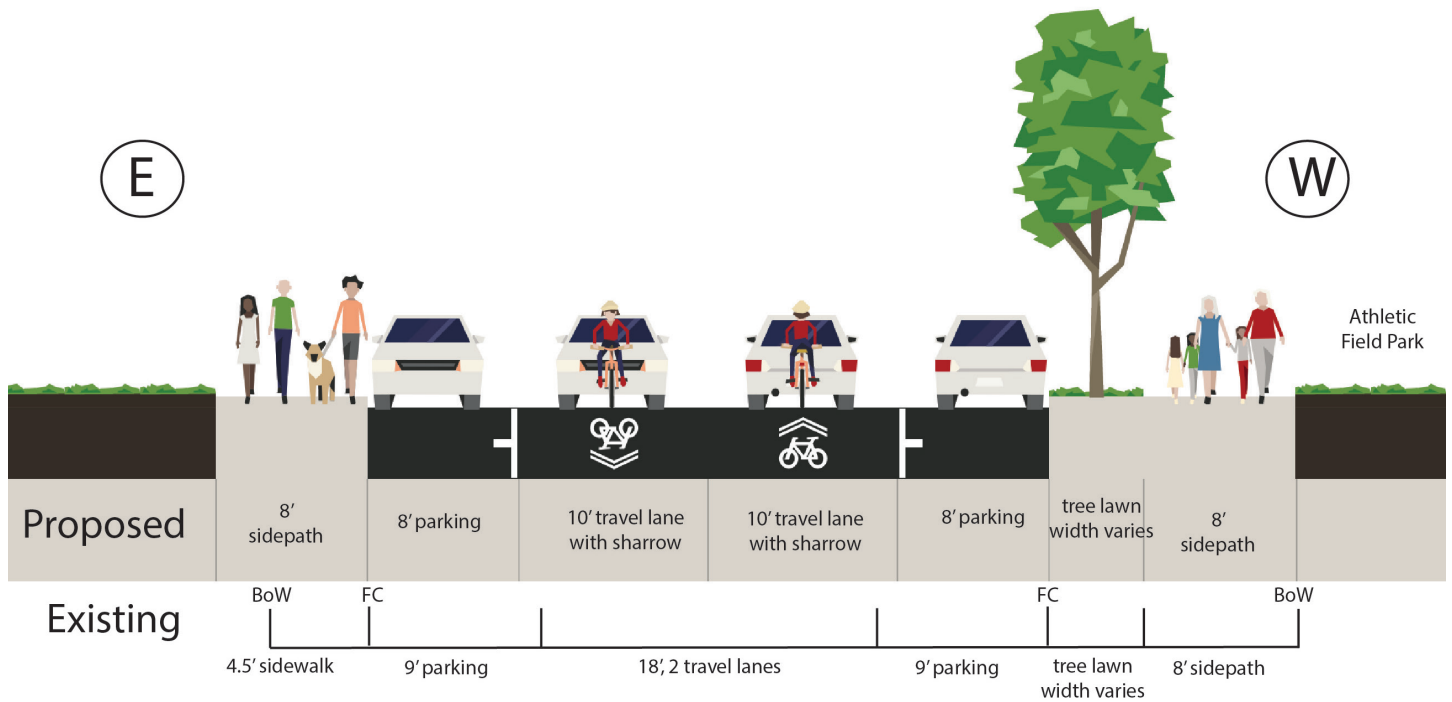
The proposed corridor design for Emery Street: Section A widens sidewalks on both side of the street. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. On the west side of the street, sidewalk widening is only by 1/2-foot and will be achieved where possible through city sidewalk rehabilitation maintenance. On the east side of the street, the existing 4.5-foot sidewalk is being replaced with a 8-foot sidewalk, likely impacting improvements in the right-of-way such as landscaping and mailboxes, as well as some public utilities such as street lights.

SECTION B: 11TH AVENUE TO 10TH AVENUE AND SECTION C: 10TH AVENUE TO 9TH AVENUE

Section Map

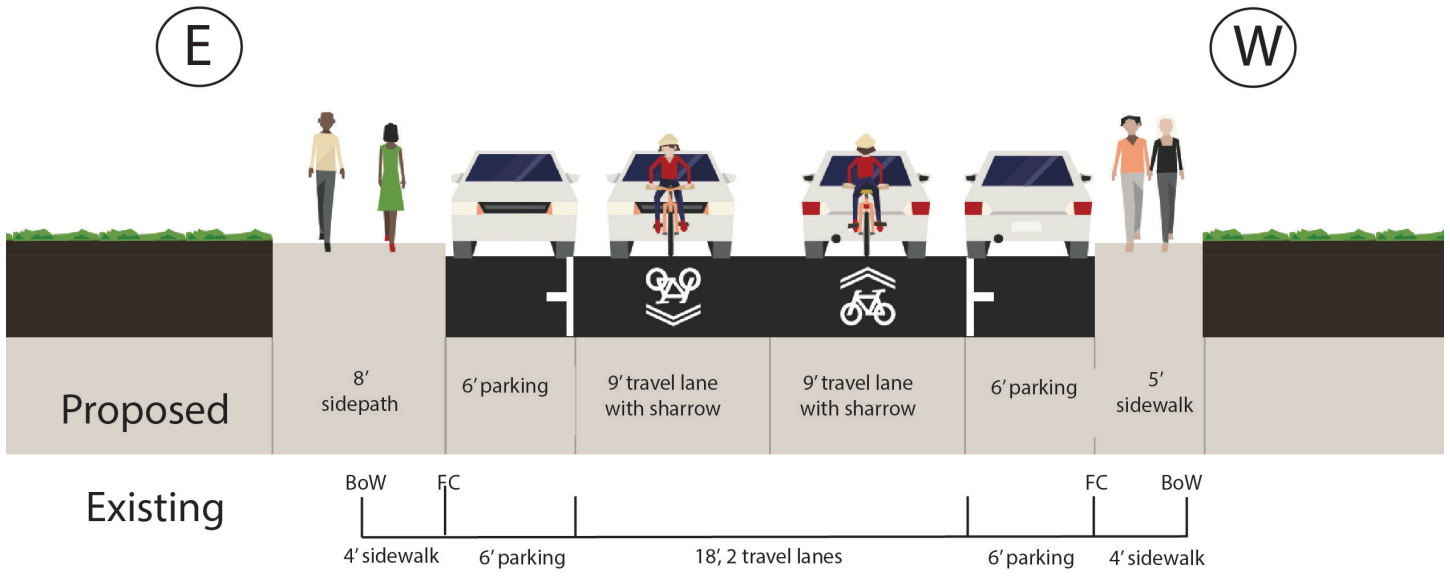


Emery Street Sections B Design: Cross-section View



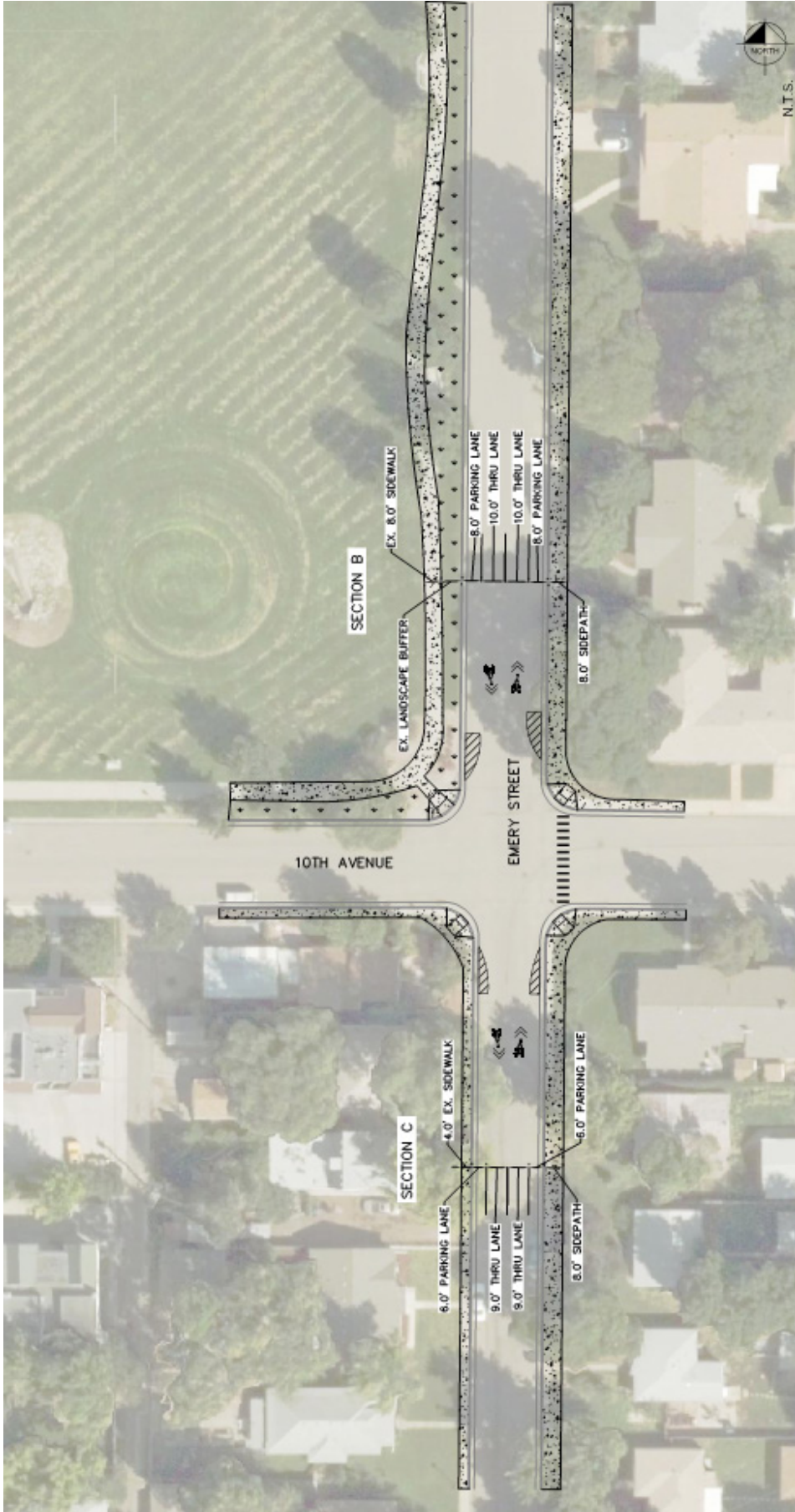
Right-of-way: 60 feet

Emery Street Sections C Design: Cross-section View



Right-of-way: 60 feet

Emery Street Sections B & C Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Emery Street: Sections B and C are anticipated to cost \$120,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Sections B and C are related to sidewalk widening, especially on the east side of the street where the sidewalk is being widened from 4 feet to 8 feet.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Sections B and C is LTS 1-3 (all segments of these sections are LTS 3 except for the west side of Section B, which is LTS 1). With the proposed design, the LTS will improve to LTS 2 on the east side of Sections B and C, resulting from widening the sidewalk on the east side. This represents a relatively comfortable environment for most people walking. The LTS on the west side will remain unchanged (LTS 1 in Section B and LTS 3 in Section C), as only minimal widening is proposed on the west side of Section C.

For People Biking On-street

The existing LTS for people biking on-street in Section B and C is LTS 2. The proposed design does not affect LTS for people biking on-street. Sharrows were recommended for this section to maintain on-street parking and to avoid impacts to improvements in the right-of-way behind the existing back-of-walk.

For People Biking Off-street

Although a sidepath exists on the west side of Section B, it does not connect to other sidepaths on Emery Street. With the proposed design, the LTS on the east side of Emery Street will improve to LTS 1, representing a highly friendly environment for people biking.

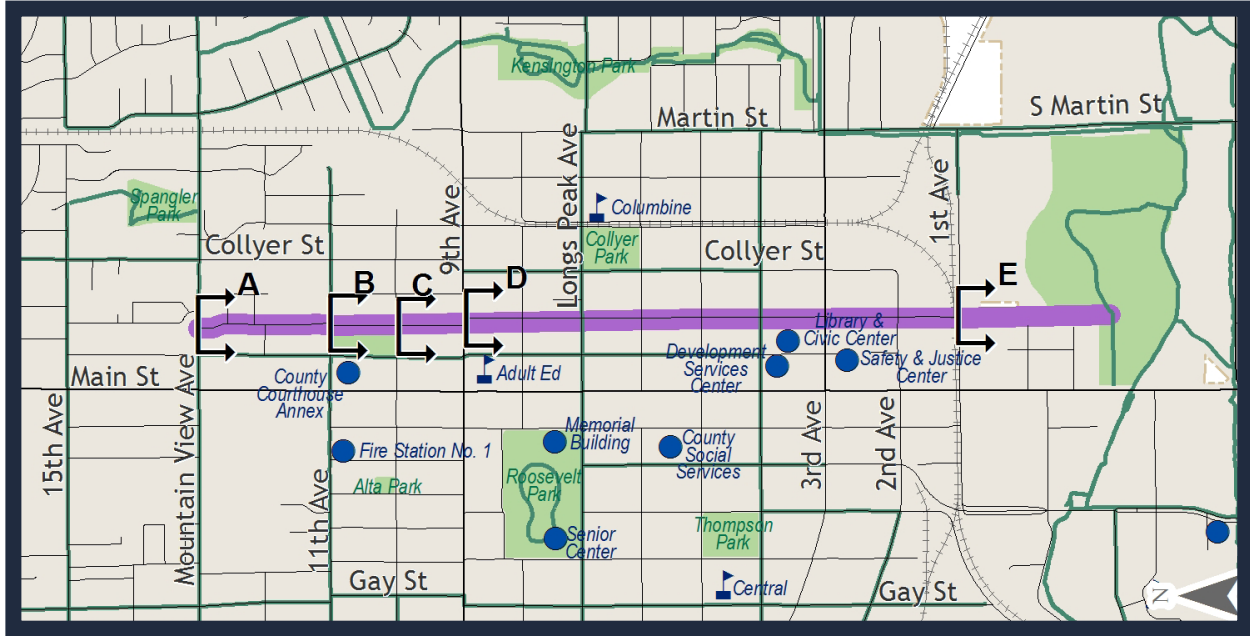
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

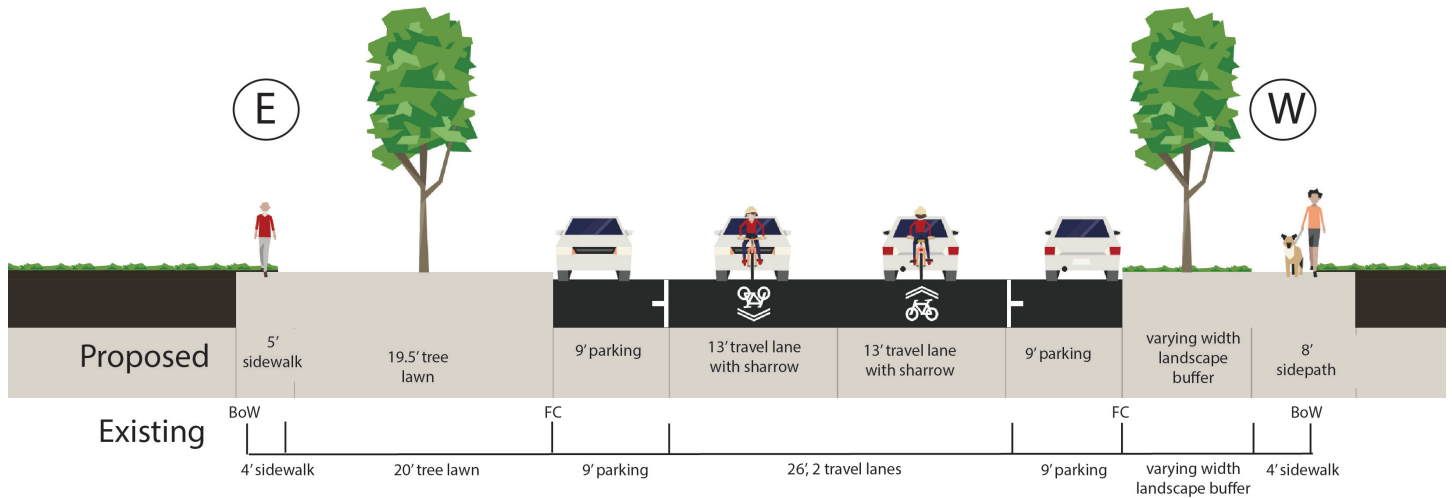
The proposed corridor design for Emery Street: Sections B and C widens sidewalks on both side of the street. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. On the west side of the street, sidewalk widening is only by 1-foot and will be achieved where possible through city sidewalk rehabilitation maintenance. On the east side of the street, the existing 4-foot sidewalk is being replaced with a 8-foot sidewalk, likely impacting improvements in the right-of-way such as landscaping as well as some public utilities such as street lights.

SECTION D: 9TH AVENUE TO 1ST AVENUE

Section Map



Emery Street Section D Design: Cross-section View

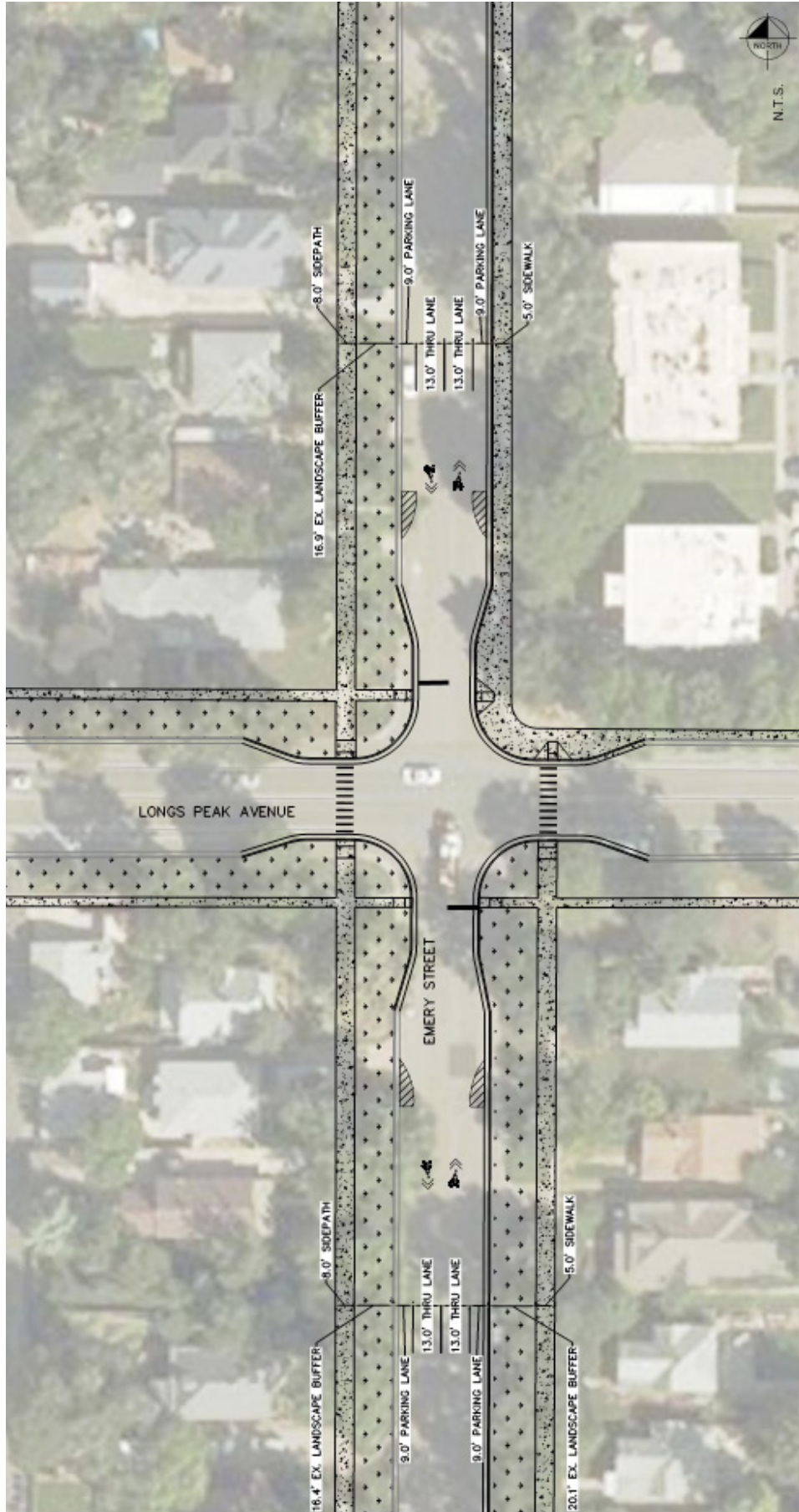


Right-of-way: 100 feet

*The block from 1st Avenue to 2nd Avenue will have a reduced right-of-way resulting from new development.

*The proposed design for Section D applies to most blocks from 9th Avenue to 1st Avenue, except for 9th Avenue to Longs Peak Avenue and 3rd Avenue to 1st Avenue, where there is no tree lawn proposed on the east side.

Emery Street Section D Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Emery Street: Section D is anticipated to cost \$2,600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section D are related to relocating curb and gutter to accommodate bulbouts at intersections and sidewalk widening, especially on the west side of the street where the sidewalk is being widened from 4 feet to 8 feet.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section D is LTS 3. With the proposed design, the LTS will improve to LTS 1-3 (LTS 1 on the west side, LTS 3 on the east side), resulting from widening the sidewalk on the west side. This represents a highly friendly environment for people walking. The LTS on the east side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section D is LTS 2. The proposed design does not affect LTS for people biking on-street. Sharrows were recommended for this section to maintain on-street parking and to avoid impacts to historic tree lawns from relocating the curb.

For People Biking Off-street

No off-street bikeway currently exists on Section D. With the proposed design, the LTS on the west side of Emery Street will improve to LTS 1, representing a highly friendly environment for people biking.

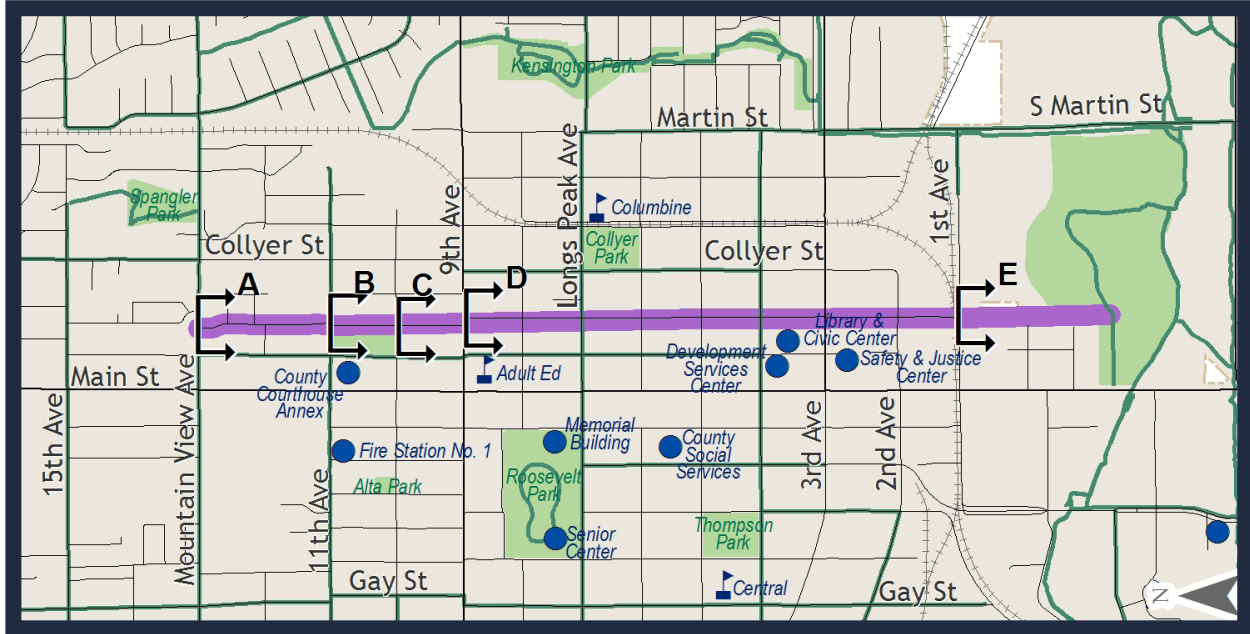
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

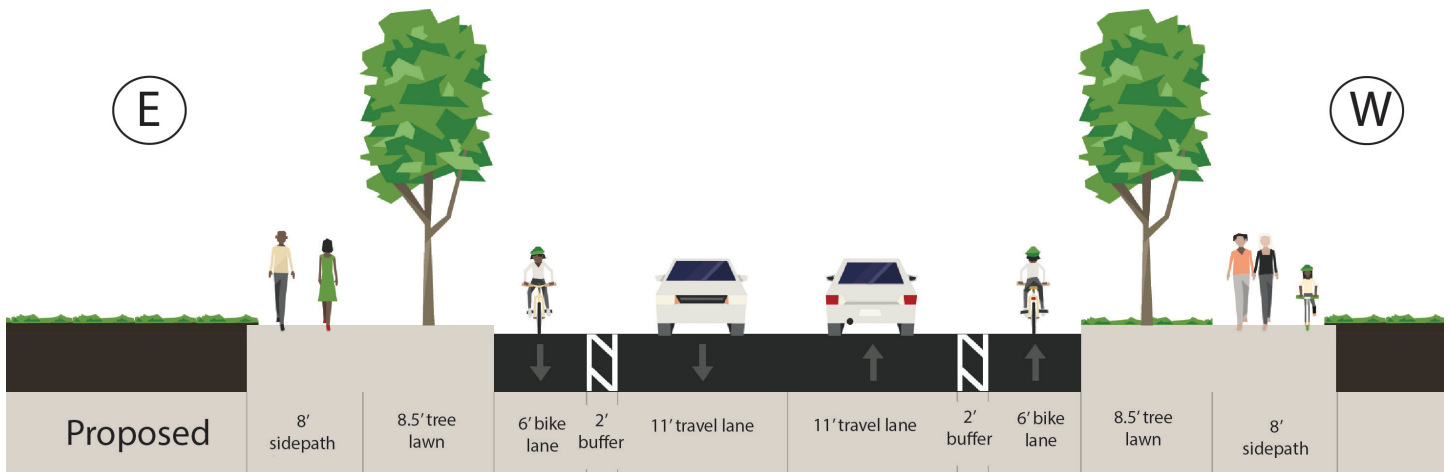
The proposed corridor design for Emery Street: Section D widens sidewalks on both side of the street. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. On the east side of the street, sidewalk widening is only by 1-foot and will be achieved where possible through city sidewalk rehabilitation maintenance. On the west side of the street, the existing 4-foot sidewalk is being replaced with a 8-foot sidewalk, likely impacting improvements in the right-of-way such as landscaping as well as some public utilities such as street lights. This section of Emery Street is notable for its mature tree canopy; the intent of this proposed design is to maintain the mature tree canopy by narrowing the sidepath where necessary but widening it where feasible.

SECTION E: 1ST AVENUE TO ST. VRAIN GREENWAY

Section E is a street segment that has not yet been constructed. The proposed design will apply to its future construction.

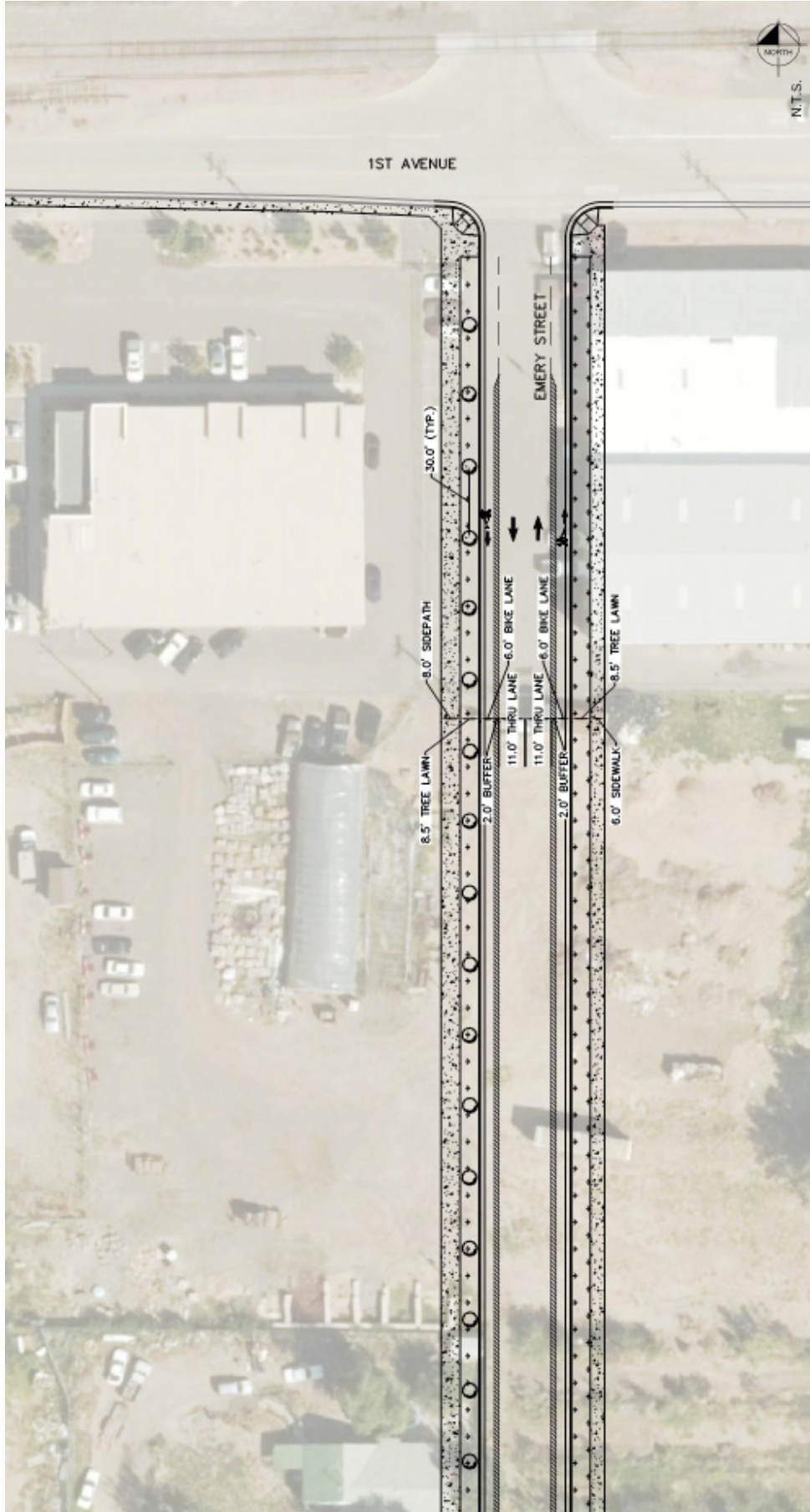


Emery Street Section E Design: Cross-section View



Right-of-way: 100 feet

Emery Street Section E Design: Plan View



COST ESTIMATE

Emery Street: Section E is on a segment of Emery Street that has not yet been constructed (1st Avenue to Boston Road). Therefore, the cost of building this section will be incurred when it is built.

LEVEL OF TRAFFIC STRESS (LTS)

Emery Street: Section E is on a segment of Emery Street that has not yet been constructed (1st Avenue to Boston Avenue). Therefore, there is no existing LTS score for Emery Street: Section E. The proposed design results in LTS 1 for people walking, for people biking on-street and for people biking off-street.

TRADEOFFS

The proposed corridor design for Emery Street: Section E results in 8-foot sidepaths on both sides of Emery Street, landscape buffers and buffered bike lanes. The total cross-section is 71 feet wide from back-of-walk to back-of-walk. The proposed design creates a high-quality environment for people walking and biking and provides ample capacity for the proposed traffic volume on Emery Street, while leaving remaining land for redevelopment.

OTHER IMPLEMENTATION CONSIDERATIONS

As there is no on-street parking proposed in Section E, and as driveways are expected to be minimized as land uses buildout along Section E, Section E may be a candidate for protected bike lanes in the future.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking



FORDHAM STREET: MOUNTAIN VIEW AVENUE TO DRY CREEK DRIVE

The proposed improvements to Fordham Street are shown in the cross-sections and plan views in this section. The proposed improvements generally establish continuous bike lanes throughout the entire length of the corridor (with the exception of the west side of Section A which, due to its downhill grade, is proposed as a shared travel lane) and a sidepath on the west side of Fordham Street, in addition to other minor sidewalk widening.

WHY IS THIS AN EMUC?

Fordham Street is a north-south EMUC in west Longmont that fills gaps in the existing and proposed system of multi-use trails. Key destinations along this EMUC include multiple parks (Hover Acres Park, Golden Ponds Nature Area and Willow Farm Park), two east-west trail networks (the Dry Creek Greenway and St. Vrain Greenway), the Longmont Supply Greenway to the north which connects to the Oligarchy Greenway and Lake McIntosh, and two EMUCs (Dry Creek Drive to the south and Mountain View Avenue to the north).

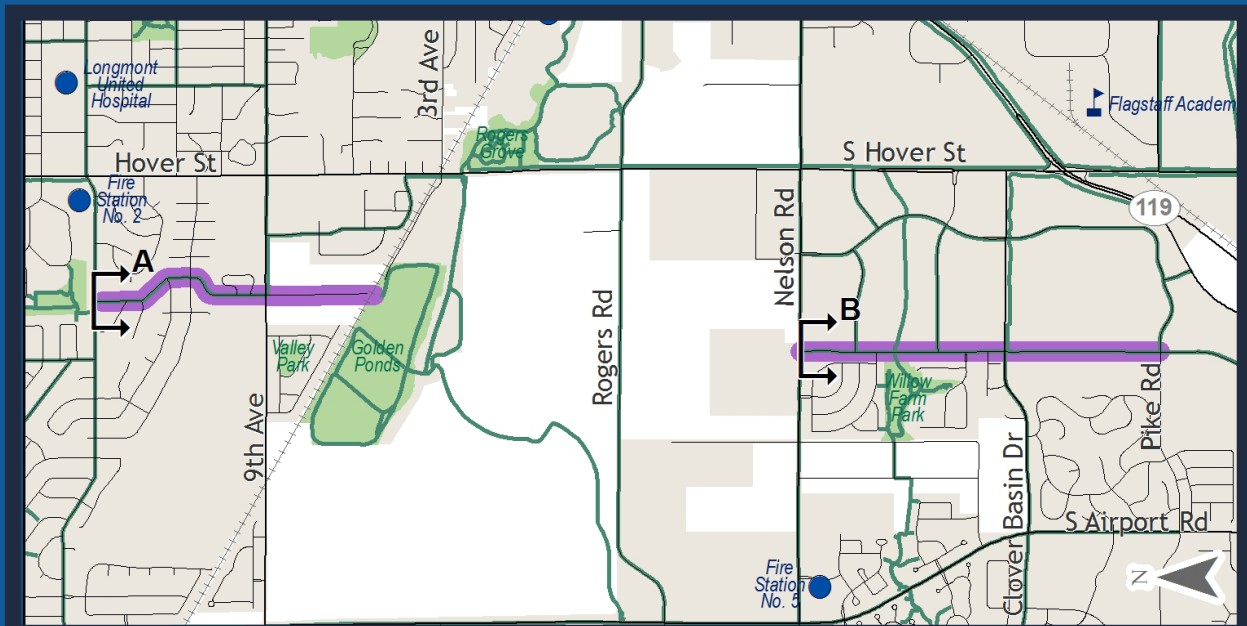
TOTAL COST ESTIMATE

The total cost for Fordham Street is approximately \$1,100,000.

FORDHAM STREET: MOUNTAIN VIEW AVENUE TO DRY CREEK DRIVE

RIGHT-OF-WAY, TRAFFIC VOLUME, AND COST SUMMARY

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Mountain View Avenue to Railroad	60'	1,200	1,300	\$500,000
Section B: Nelson Road to Dry Creek Drive	58'-62'	1,600-1,900	3,300	\$600,000



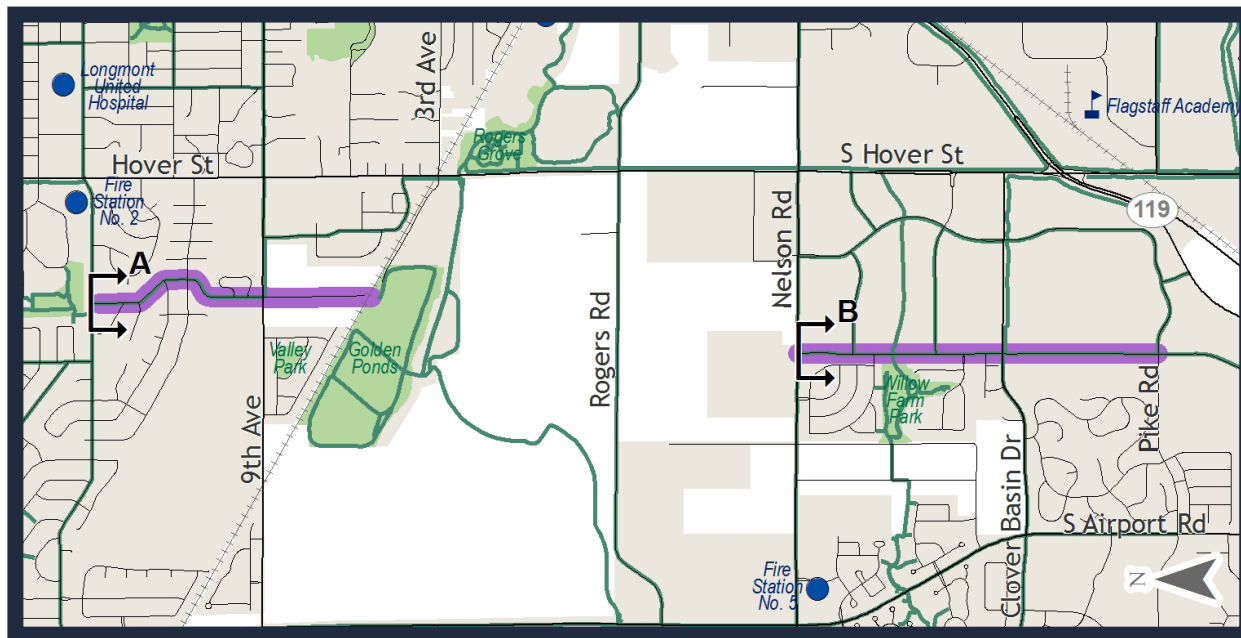
The Fordham Street EMUC would connect to a multi-use trail between the railroad and Nelson Drive. This assumes that a grade-separated crossing of the railroad is constructed. The planning, design and cost estimating for that grade-separation is not a part of this project.

PROPOSED DESIGN

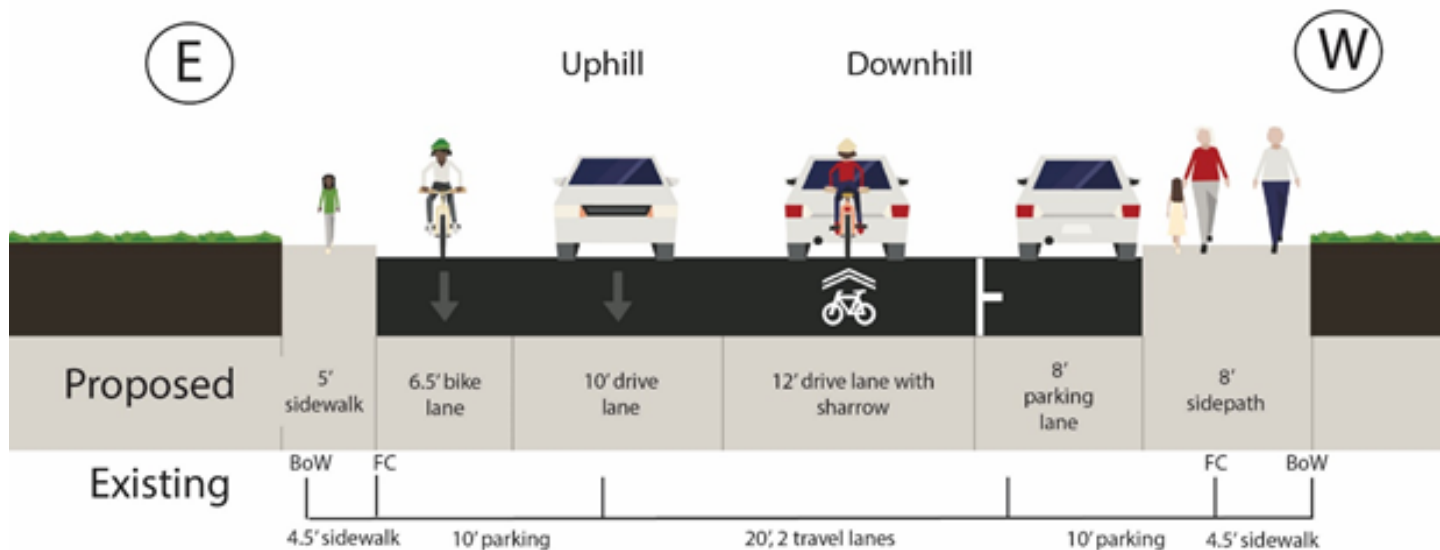
The corridor is comprised of two segments where the existing cross-section changes significantly. Cross-section view and plan view diagrams for each segment follow.

SECTION A: MOUNTAIN VIEW AVENUE TO RAILROAD

Section Map



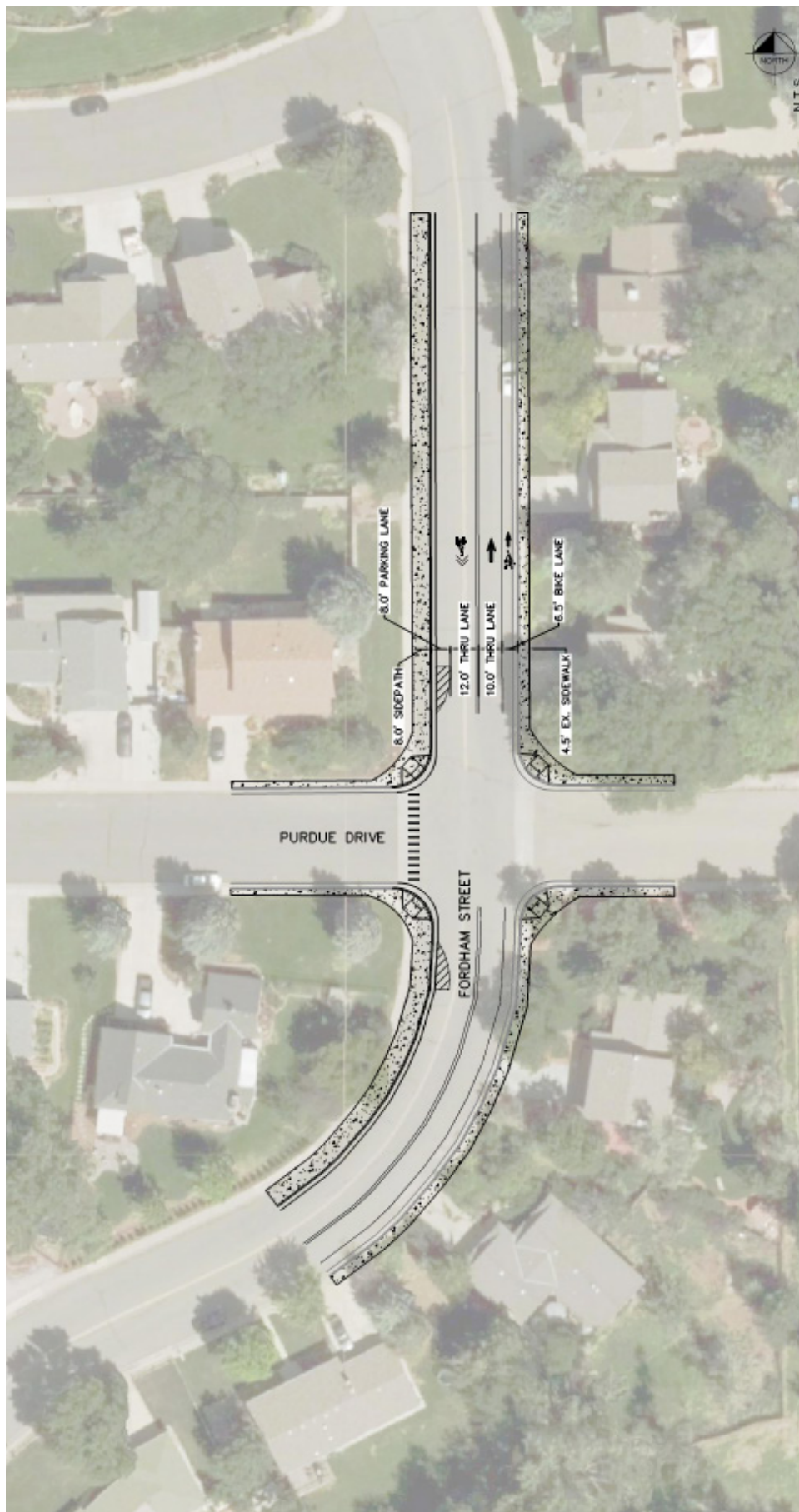
Fordham Street Section A Design: Cross-section View



Right-of-way: 60 feet

The Section A design provides a bike lane for people biking uphill, where the speed differential between people biking and vehicles is greatest. There is a shared travel lane for people biking downhill (in the southbound direction).

Fordham Street Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Fordham Street: Section A is anticipated to cost \$500,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to relocating curb and gutter to accommodate the proposed sidepath and sidewalk widening, especially on the west side of the street where the sidewalk is being widened from 4.5 feet to 8 feet.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 3. With the proposed design, the LTS will improve to LTS 2-3 (LTS 2 on the west side, LTS 3 on the east side), resulting from widening the sidewalk on the west side. This represents a relatively comfortable environment for most people walking. The LTS on the east side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 2. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section A. With the proposed design, the LTS on the west side of Fordham Street will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

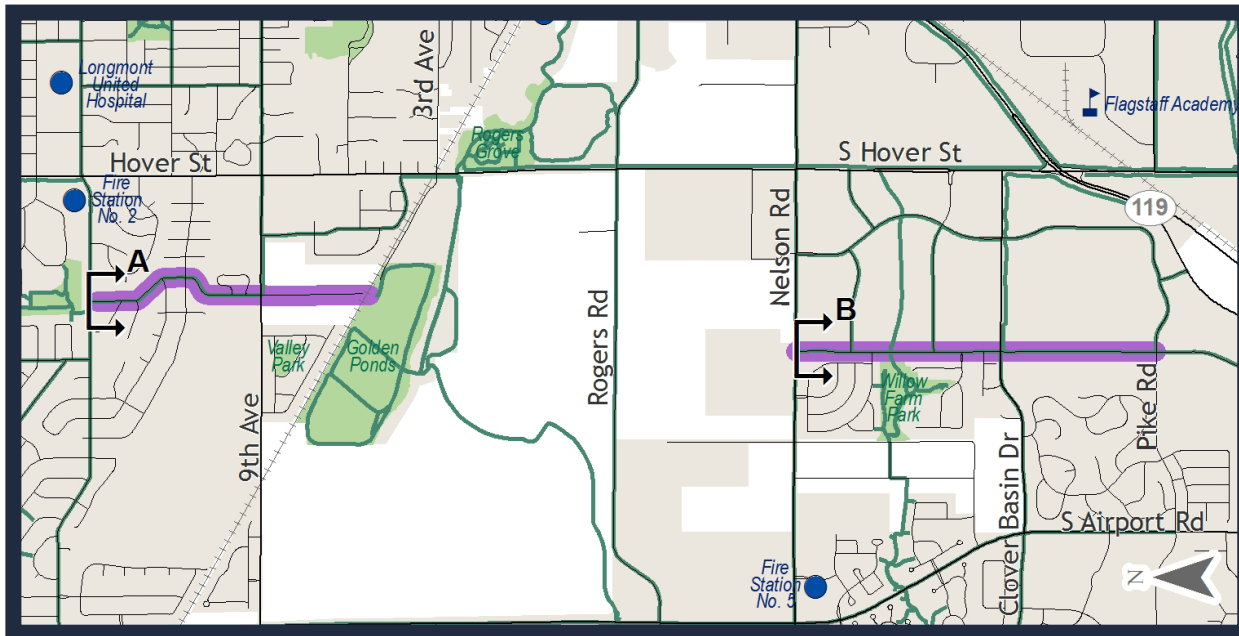
TRADEOFFS

The proposed corridor design for Fordham Street: Section A widens sidewalks on both side of the street. On the west side of the street the curb is relocated so that sidewalk widening does not extend beyond the existing back-of-walk. On the east side of the street, sidewalk widening is only by 1/2-foot and will be achieved where possible through city sidewalk rehabilitation maintenance.

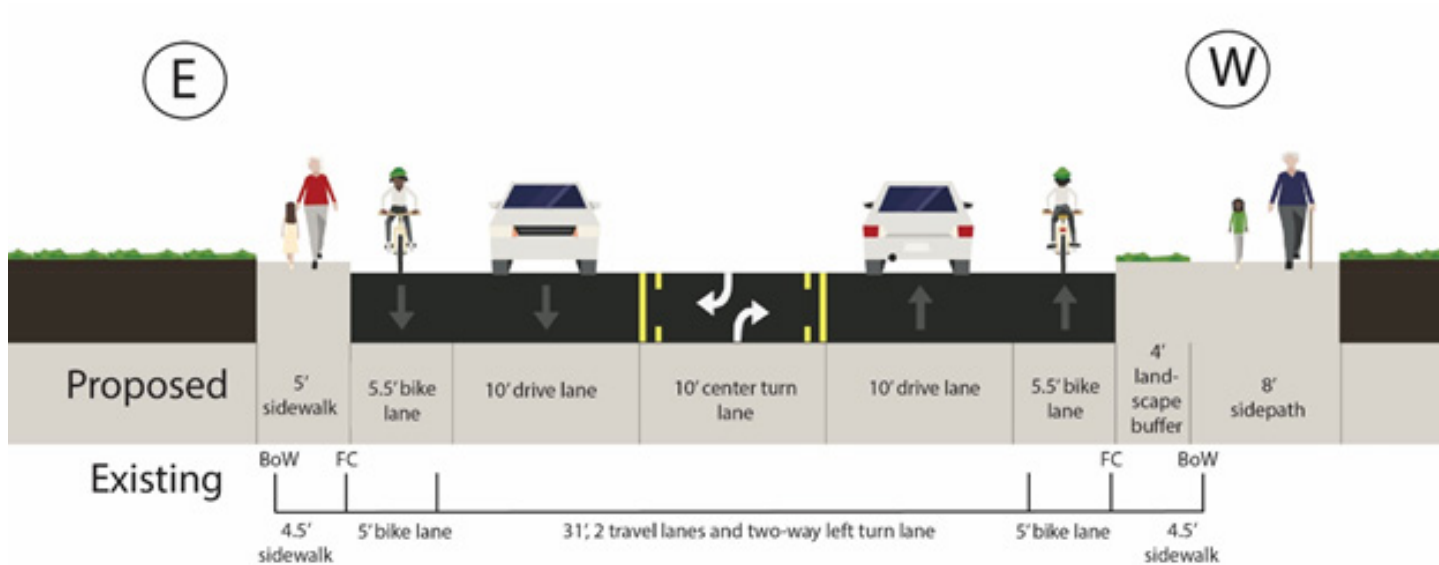
Relocating the west side’s curb to accommodate the sidepath requires removing parking from one side of the street. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Fordham Street suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

SECTION B: NELSON ROAD TO DRY CREEK DRIVE

Section Map

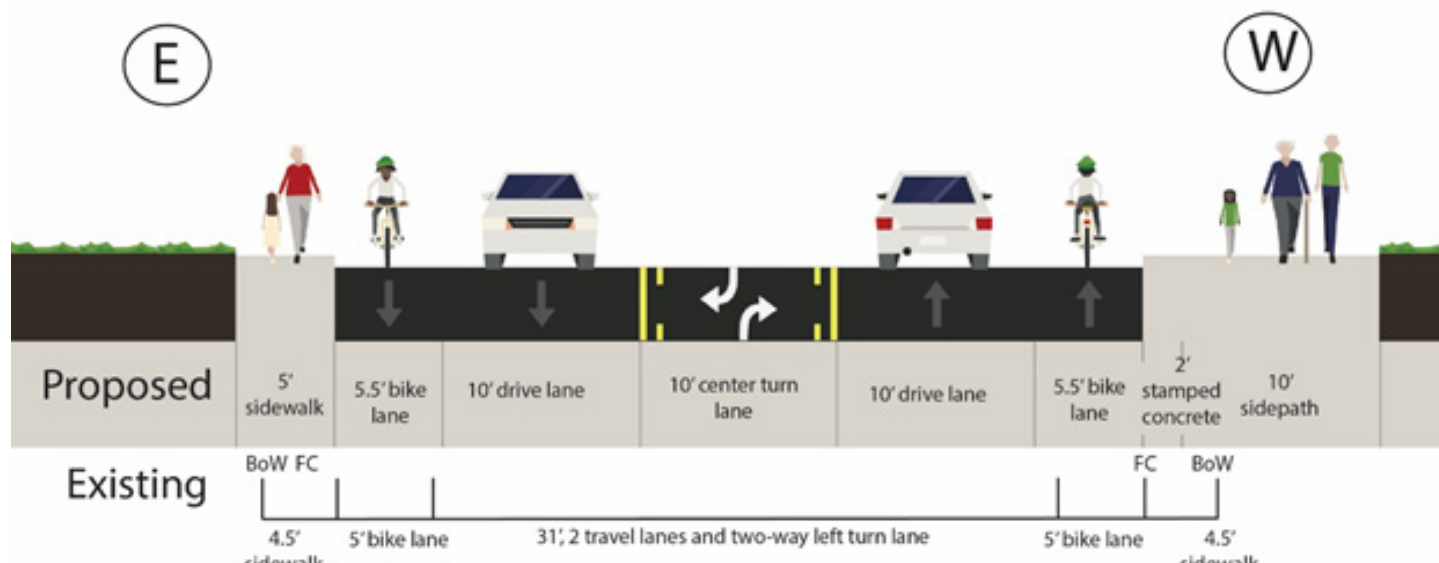


**Fordham Street Section A Design: Cross-section View
Option 1**



Right-of-way: 58-62 feet

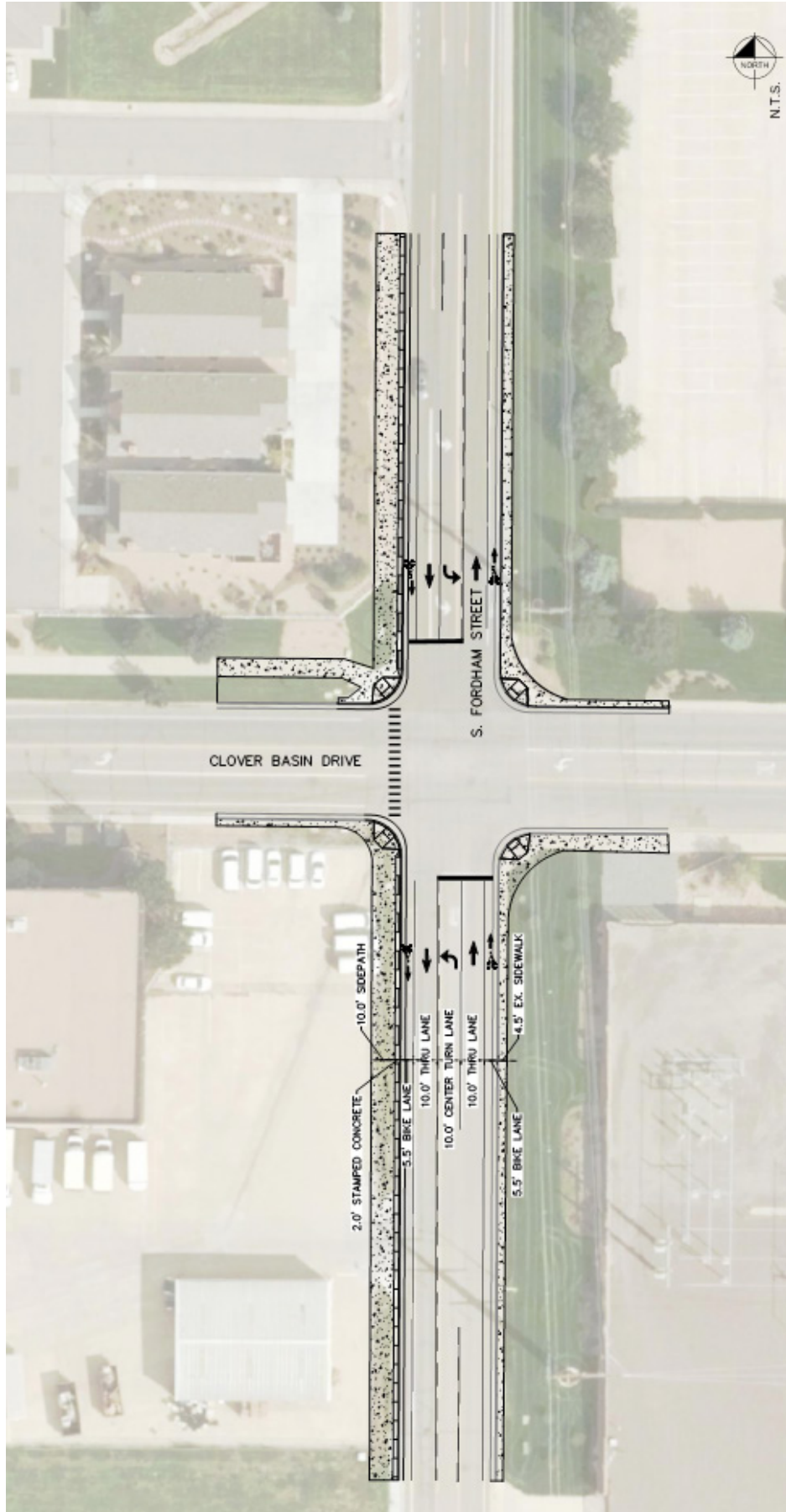
Option 2



Right-of-way: 58-62 feet

Two options are provided for Section B to provide options for the material used in the sidepath buffer on the west side. Option 1 features a 4-foot landscape buffer and an 8-foot sidepath while Option 2 features a 2-foot stamped concrete buffer and a 10-foot sidepath. These options vary in aesthetics and in their respective maintenance needs. The 4-foot landscape buffer in Option 1 is desirable; however, this landscape buffer is not located at a land use's front door. Instead, homes on this corridor face internal, local streets making property owner maintenance of the landscape buffer unlikely. Option 2 may be more desirable for Section B as it will not require regular property owner maintenance.

Fordham Street Section B Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Fordham Street: Section B is anticipated to cost \$600,000 (Option 2 was used in this estimate). Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section B are related to sidewalk widening, especially on the west side of the street where the sidewalk is being widened from 4.5 feet to 8 feet.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section B is LTS 3. With the proposed design, the LTS will improve to LTS 1-3 (LTS 1 on the west side, LTS 3 on the east side), resulting from widening the sidewalk on the west side. This represents a highly friendly environment for people walking. The LTS on the east side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section B is LTS 2. With the proposed design, the LTS will remain LTS 2 as only minimal bike lane widening is proposed.

For People Biking Off-street

No off-street bikeway currently exists on Section B. With the proposed design, the LTS on the west side of Fordham Street will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

The proposed corridor design for Fordham Street: Section B widens sidewalks on both side of the street. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. On the east side of the street, sidewalk widening is only by ½-foot and will be achieved where possible through city sidewalk rehabilitation maintenance. On the west side of the street, the existing 4.5-foot sidewalk is being replaced by a combined 12 feet of sidepath and buffer, likely impacting improvements in the right-of-way such as landscaping. Additionally, there are large electric power transmission lines on the west side of the street that the sidepath will need to meander around to avoid impacting.



GAY STREET: HIGHWAY 66 TO PRICE ROAD

The proposed improvements to Gay Street are shown in the cross-sections and plan views in this section. The proposed improvements generally establish wide bike lanes, and in some cases buffered bike lanes, along the corridor's entire length. Additionally, the proposed improvements include an 8-foot sidepath along much of the corridor.

WHY IS THIS AN EMUC?

Gay Street is a north-south EMUC 0.4 miles west of Downtown Longmont that connects SH 66 to Price Road. It will create a strong north-south connection through the heart of Longmont where there is no existing or proposed trail. It provides connectivity to three parks: Thompson Park, Carr Park and Roosevelt Park. Three schools are also nearby: Northridge Elementary, Central Elementary and Mountain View Elementary. Gay Street connects to three east-west EMUCs: 21st Avenue, Mountain View Avenue and Price Road. Via its connection to Price Road, the Gay Street EMUC will provide connectivity to the St. Vrain Greenway. It also provides connectivity to sidepaths along SH 66 at its north end and to sidepaths along Ken Pratt Boulevard at its south end.

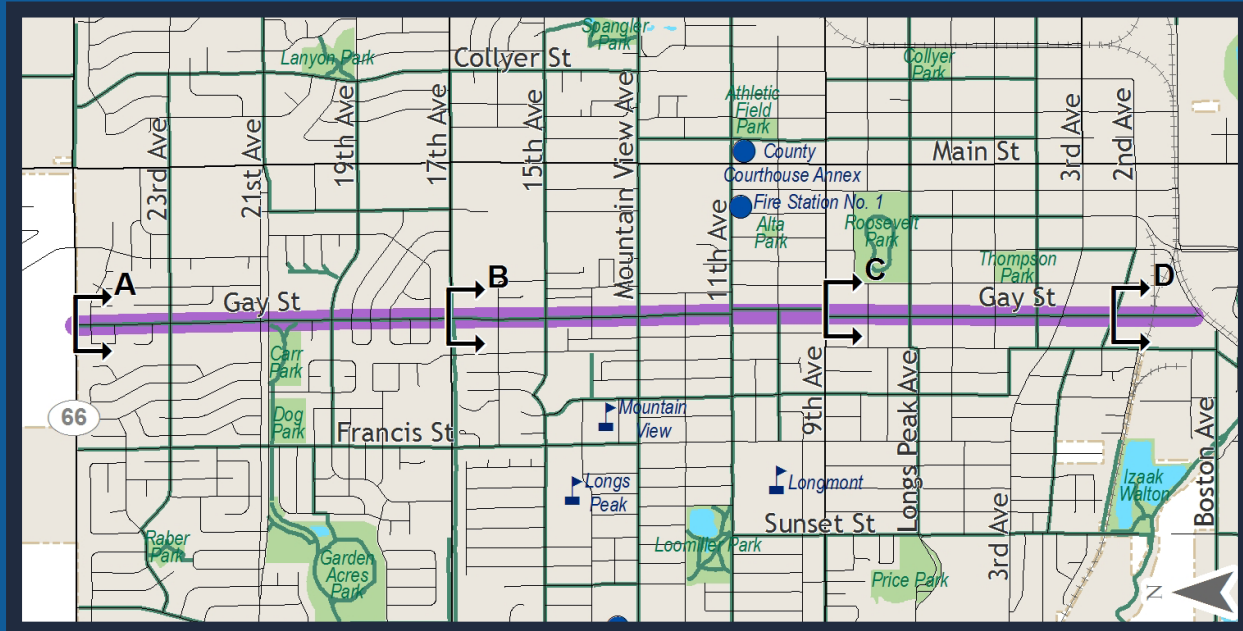
TOTAL COST ESTIMATE

The total cost for Gay Street is approximately \$11,200,000.

These costs include bulbouts at most intersections along Gay Street. The proposed design may be implemented in phases to reduce initial costs by omitting the bulbouts from early phases.

RIGHT-OF-WAY, TRAFFIC VOLUME, AND COST SUMMARY

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Highway 66 to 17th Avenue	0'-78'	1,700-2,000	2,000	\$3,600,000
Section B: 17th Avenue to 9th Avenue	50'-75'	1,500-2,600	2,600	\$2,800,000
Section C: 9th Avenue to 2nd Avenue	75'-100'	2,200-2,500	2,500	\$3,600,000
Section D: 2nd Avenue to Price Avenue	100'	1,400	2,500	\$1,200,000

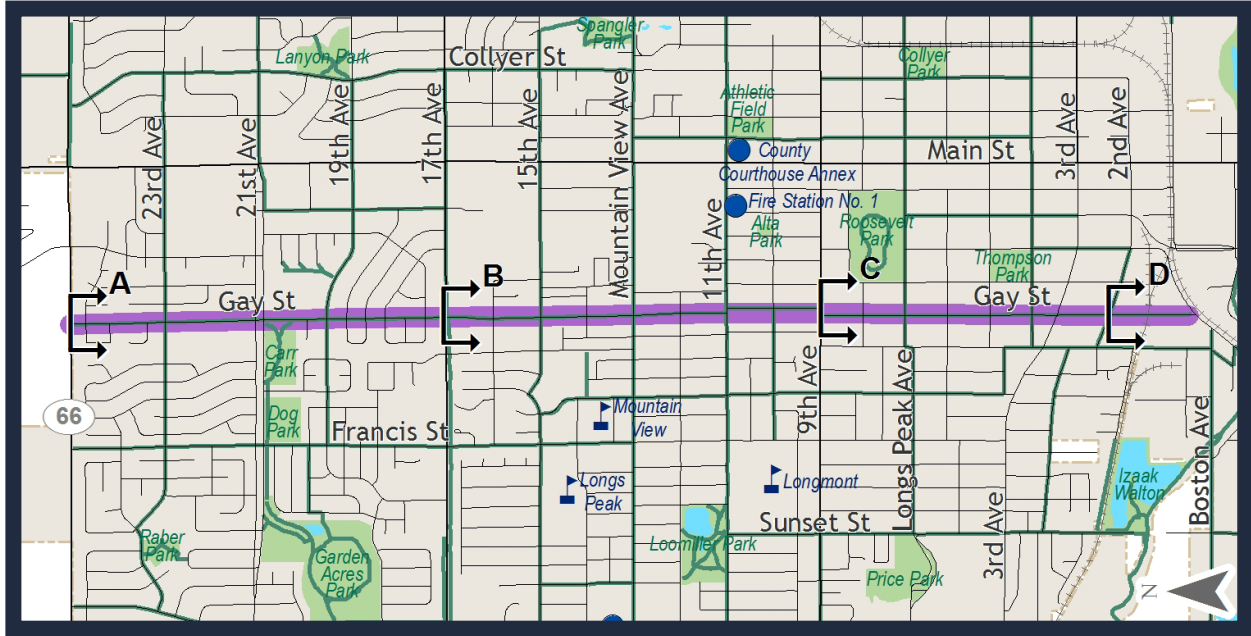


PROPOSED DESIGN

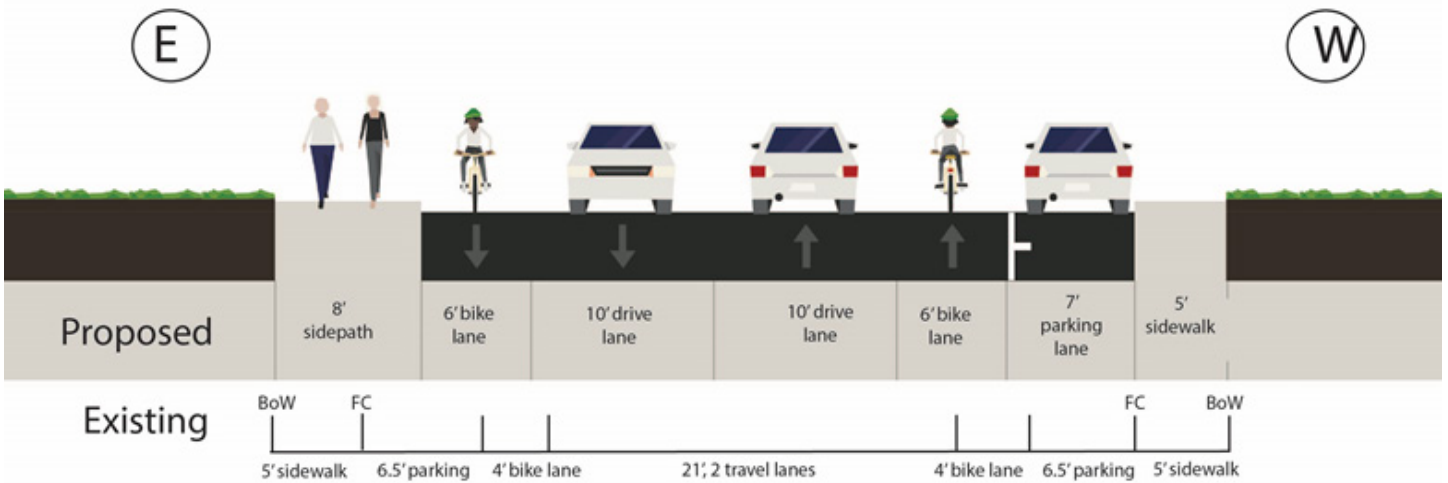
The corridor is comprised of various segments where the existing cross-section changes significantly. Cross-section view and plan view diagrams for each segment follow.

SECTION A: HIGHWAY 66 TO 17TH AVENUE

Section Map

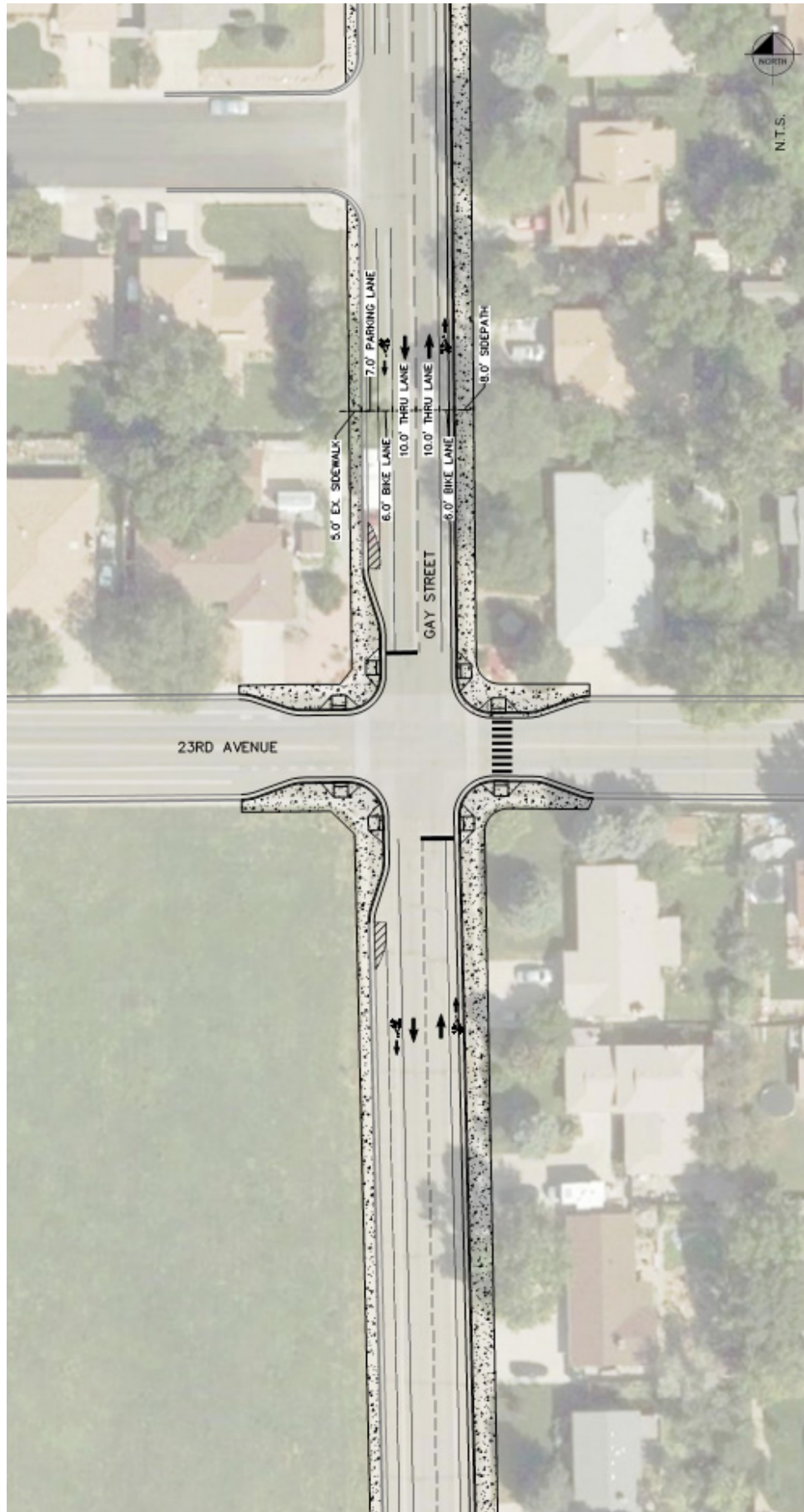


Gay Street Section A Design: Cross-section View



Right-of-way: 70-78 feet

Gay Street Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Gay Street: Section A is anticipated to cost \$3,600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to relocating curb and gutter to accommodate the proposed sidepath on the east side of the street where the sidewalk is being widened from 5 feet to 8 feet.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 3. With the proposed design, the LTS will improve to LTS 2-3 (LTS 2 on the east side, LTS 3 on the west side), resulting from widening the sidewalk on the east side. This represents a relatively comfortable environment for most people walking. The LTS on the west side is unchanged as no widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 2. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section A. With the proposed design, the LTS on the east side of Gay Street will improve to LTS 1, representing a highly friendly environment for people biking.

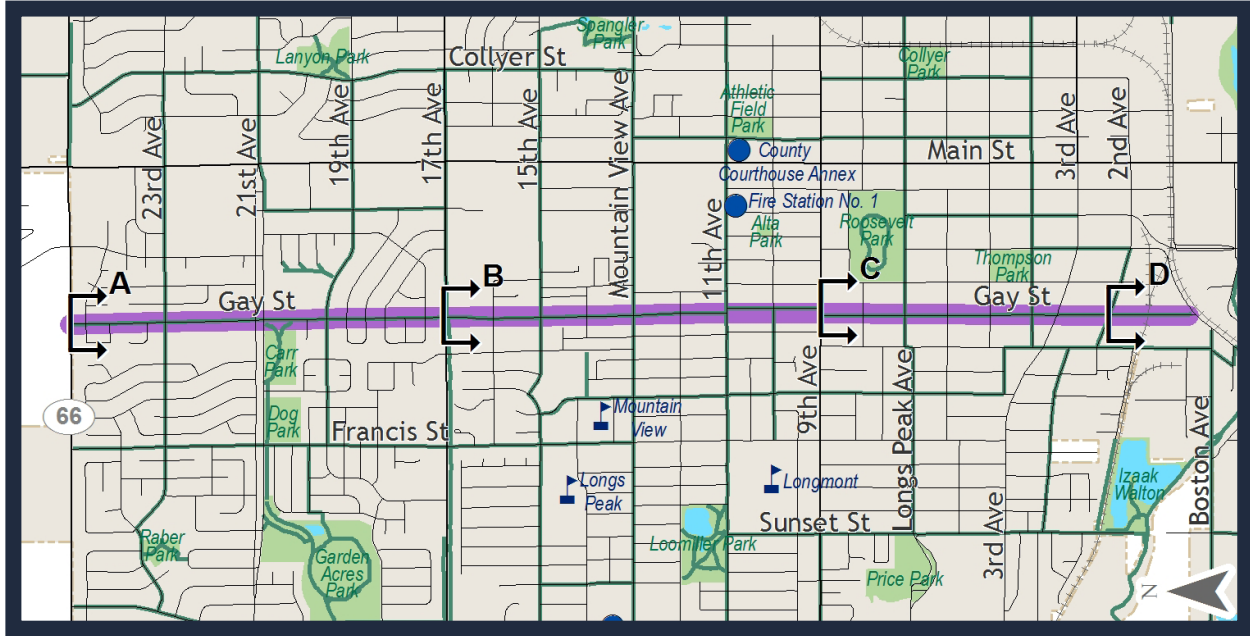
TRADEOFFS

The proposed corridor design for Gay Street: Section A widens the sidewalk on the east side of the street from a 5-foot sidewalk into an 8-foot sidepath. To accommodate this widening, the curb is relocated so that sidewalk widening does not extend beyond the existing back-of-walk. This ensured that the proposed design will not affect the existing integrated lamp posts and electric meters. Relocating the east side’s curb to accommodate the sidepath requires removing parking from one side of the street. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Gay Street suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

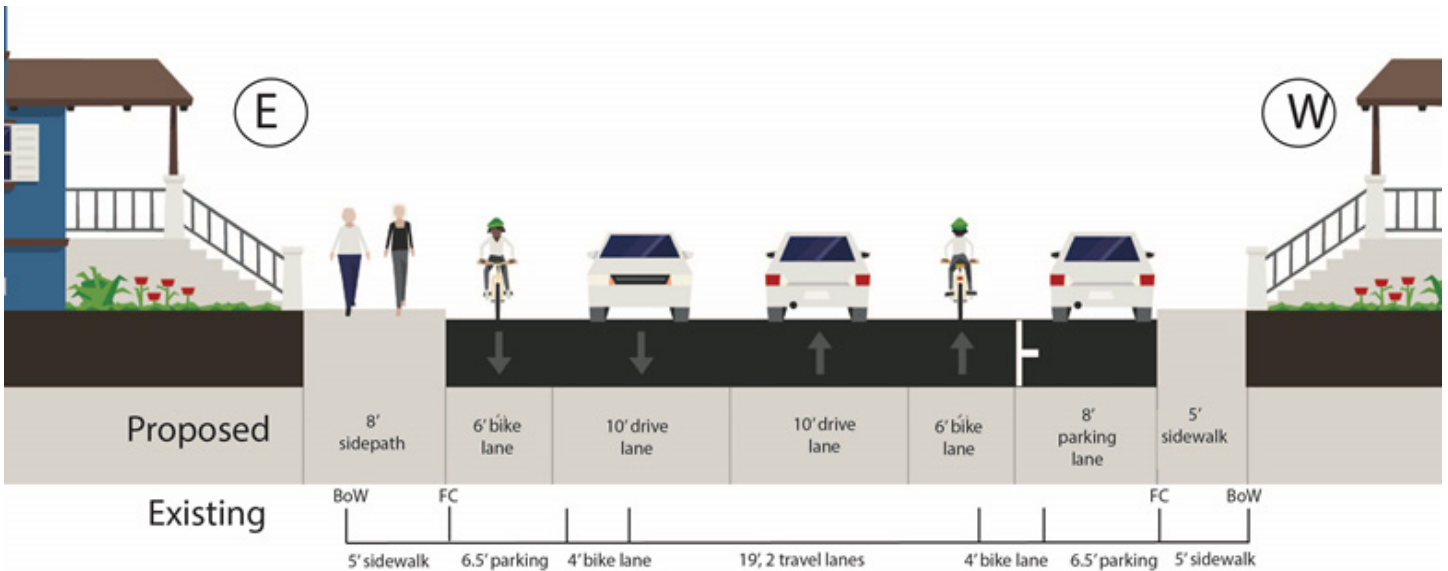
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

SECTION B: 17TH AVENUE TO 9TH AVENUE

Section Map

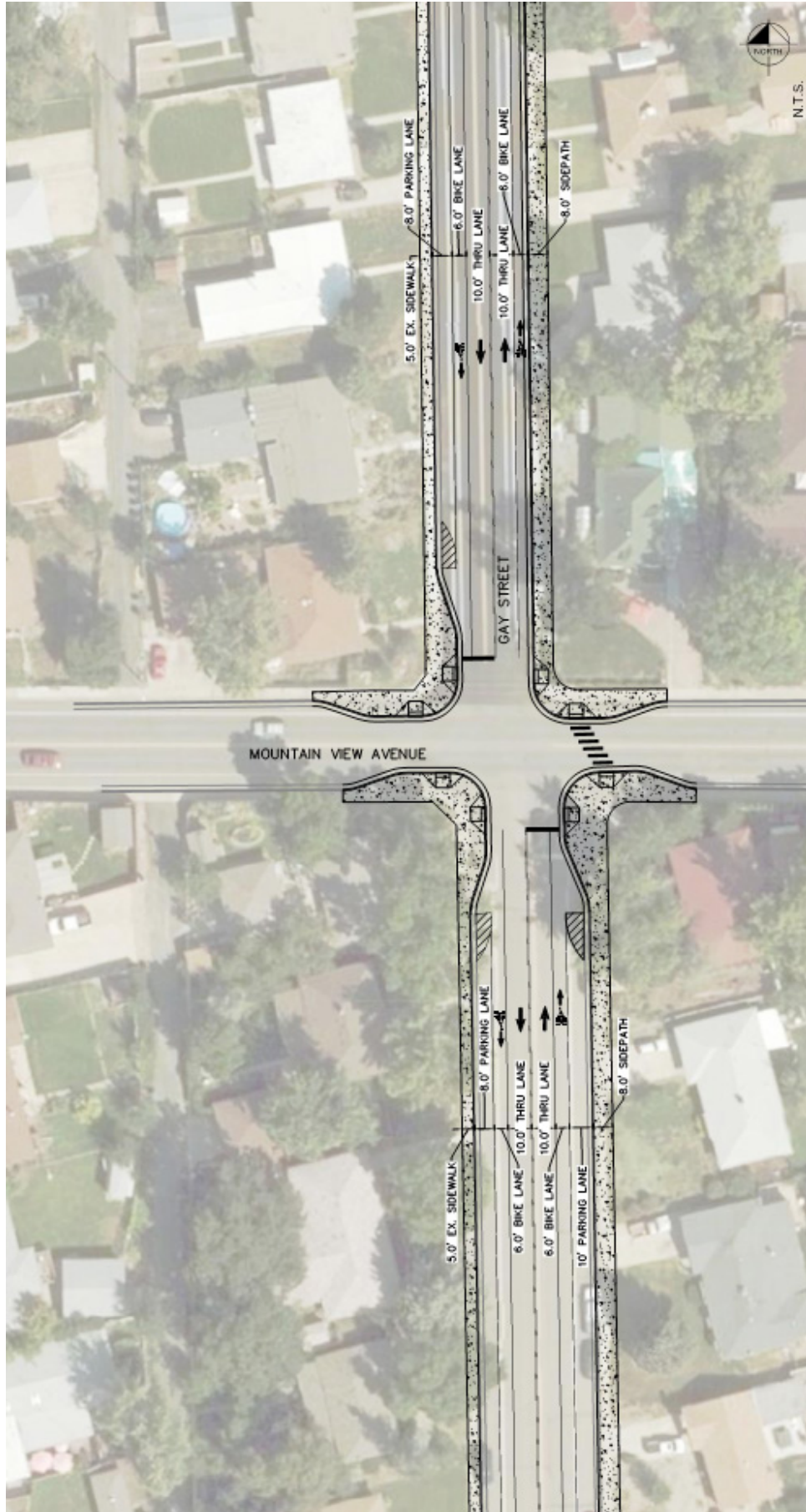


Gay Street Section B Design: Cross-section View



Right-of-way: 50-75 feet

Gay Street Section B Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Gay Street: Section B is anticipated to cost \$2,800,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section B are related to sidewalk widening on the east side of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section B is LTS 3. With the proposed design, the LTS will improve to LTS 2-3 (LTS 2 on the east side, LTS 3 on the west side), resulting from widening the sidewalk on the east side. This represents a relatively comfortable environment for most people walking. The LTS on the west side is unchanged as no widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people for people biking on-street in Section B is LTS 2. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section B. With the proposed design, the LTS on the east side of Gay Street will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

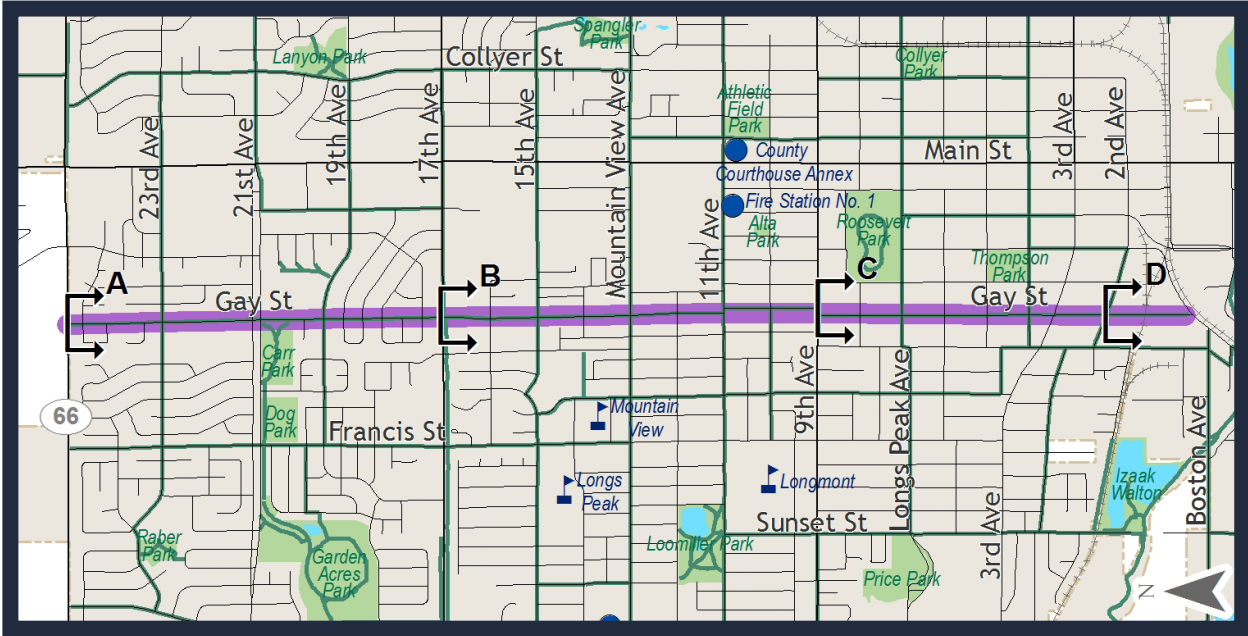
TRADEOFFS

The proposed corridor design for Gay Street: Section B widens the sidewalk on the east side of the street from a 5-foot sidewalk into an 8-foot sidepath. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. Widening of the sidewalk on the east side of the street will likely result in impacts to improvements in the right-of-way such as landscaping and mailboxes, as well as some public utilities such as street lights.

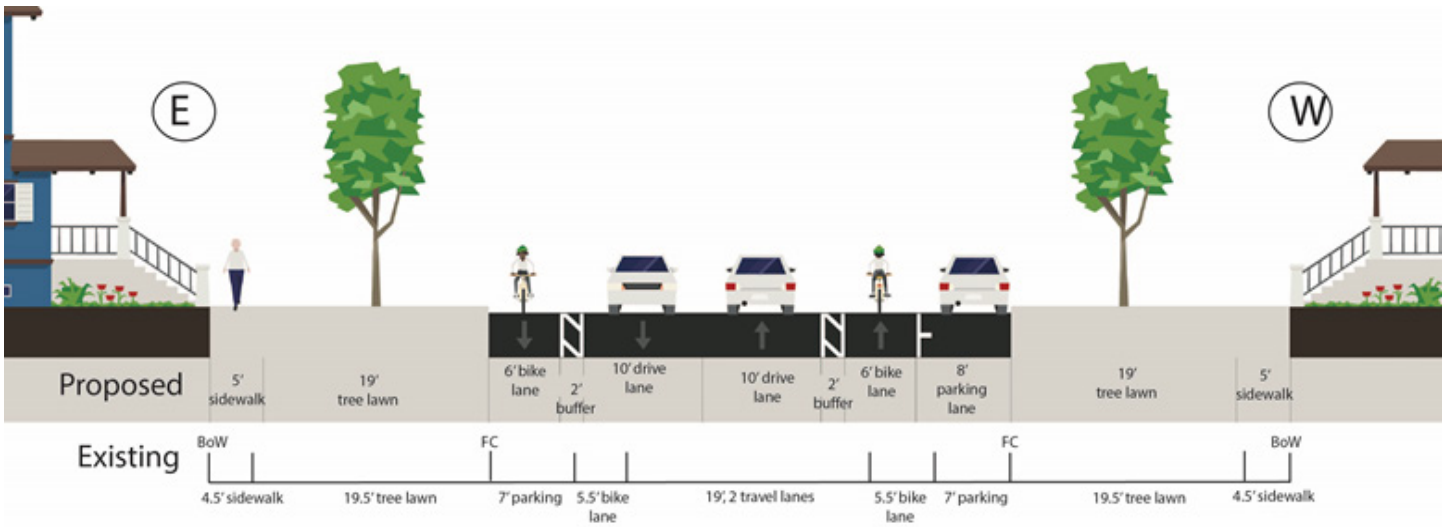
Widening bike lanes on both sides of the street also requires removing parking from one side of the street. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Gay Street suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

SECTION C: 9TH AVENUE TO 2ND AVENUE

Section Map

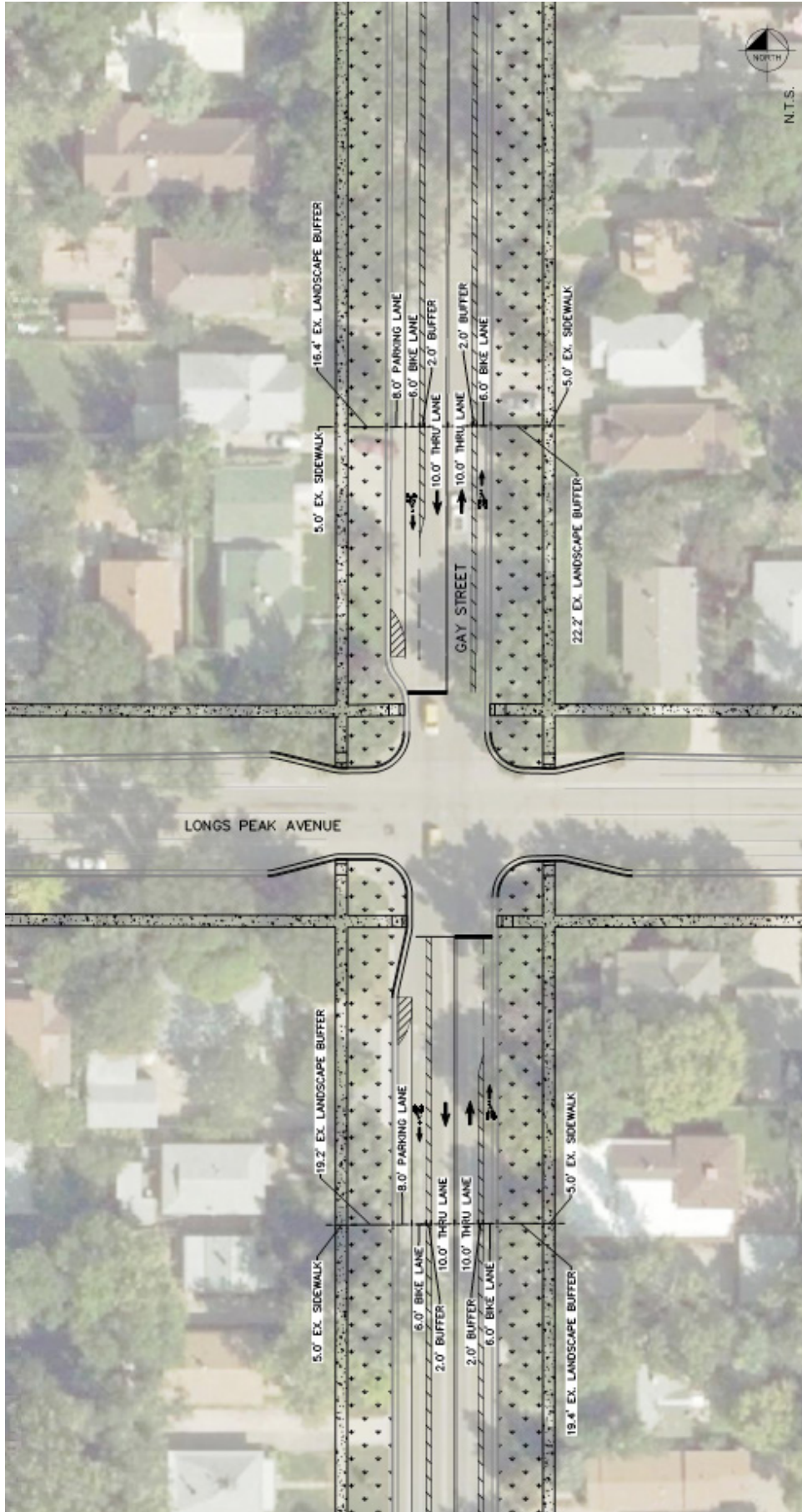


Gay Street Section C Design: Cross-section View



Right-of-way: 75-100 feet

Gay Street Section C Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Gay Street: Section C is anticipated to cost \$3,600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section C are related to restriping the traveled way (removing and installing pavement markings) and minor sidewalk widening.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section C is LTS 3. With the proposed design, the LTS for people walking is unchanged as only minor sidewalk widening is proposed.

For People Biking On-street

The existing LTS for people biking on-street in Section C is LTS 3. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section C. The proposed design for Section C does not add an off-street bikeway.

WHAT DO LTS SCORES MEAN?

LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

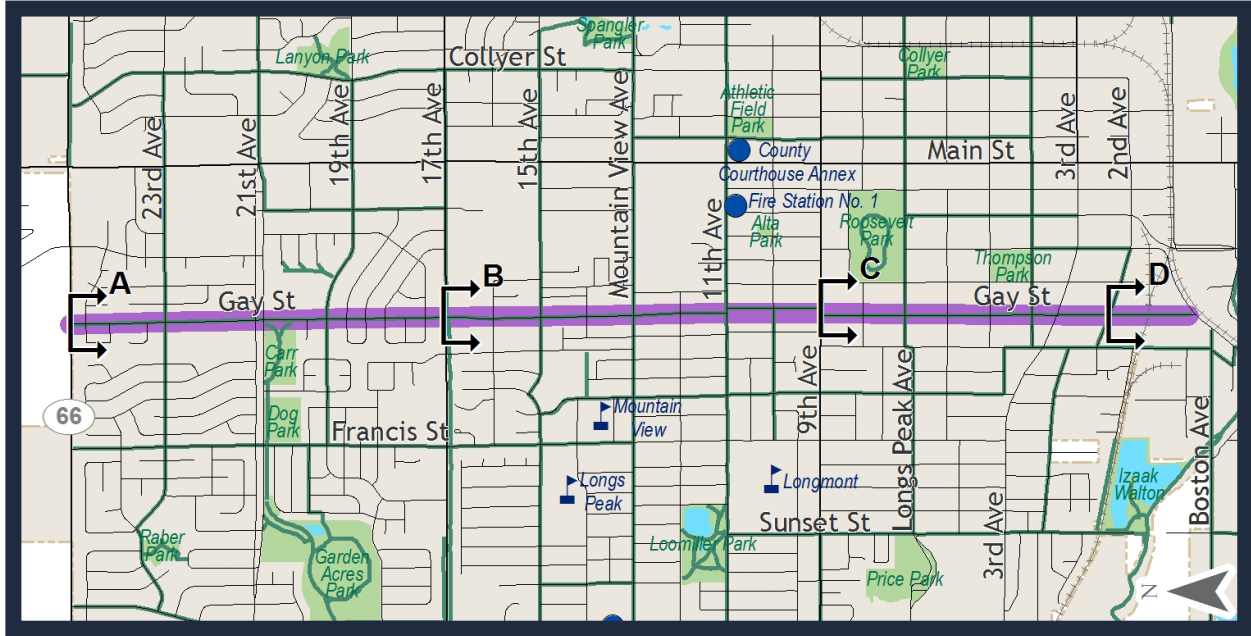
TRADEOFFS

The proposed corridor design for Gay Street: Section C widens the sidewalk on both sides of the street from 4.5 feet to 5 feet. This sidewalk widening is only by ½-foot and will be achieved where possible through city sidewalk rehabilitation maintenance.

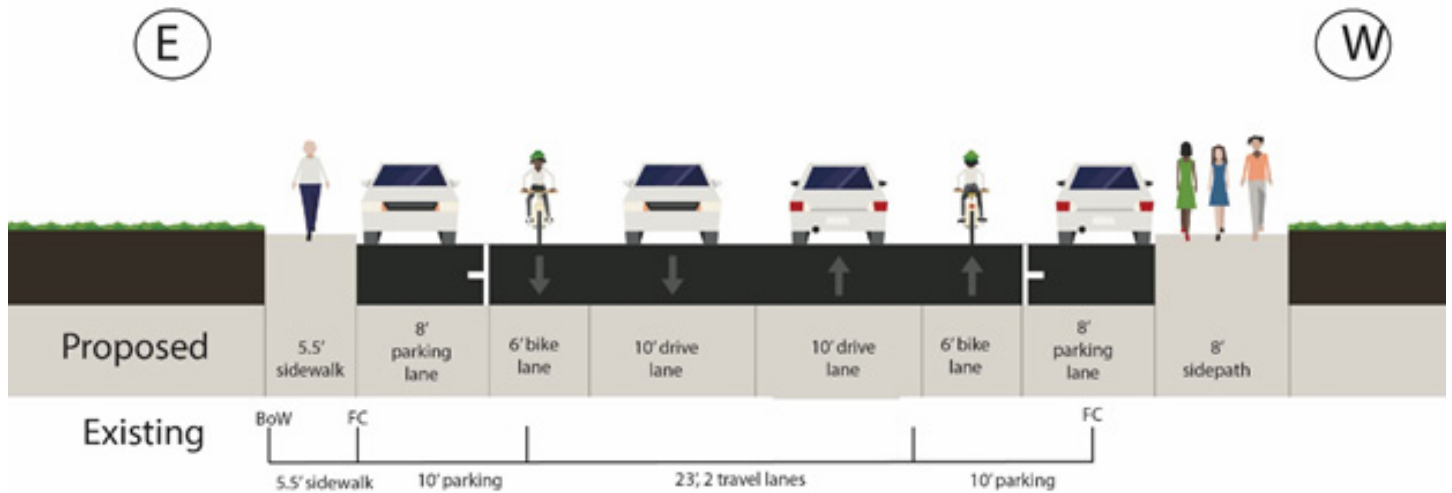
Upgrading the existing bike lanes on both sides of the street to buffered bike lanes requires removing parking from one side of the street. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Gay Street suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

SECTION D: 2ND AVENUE TO PRICE ROAD

Section Map

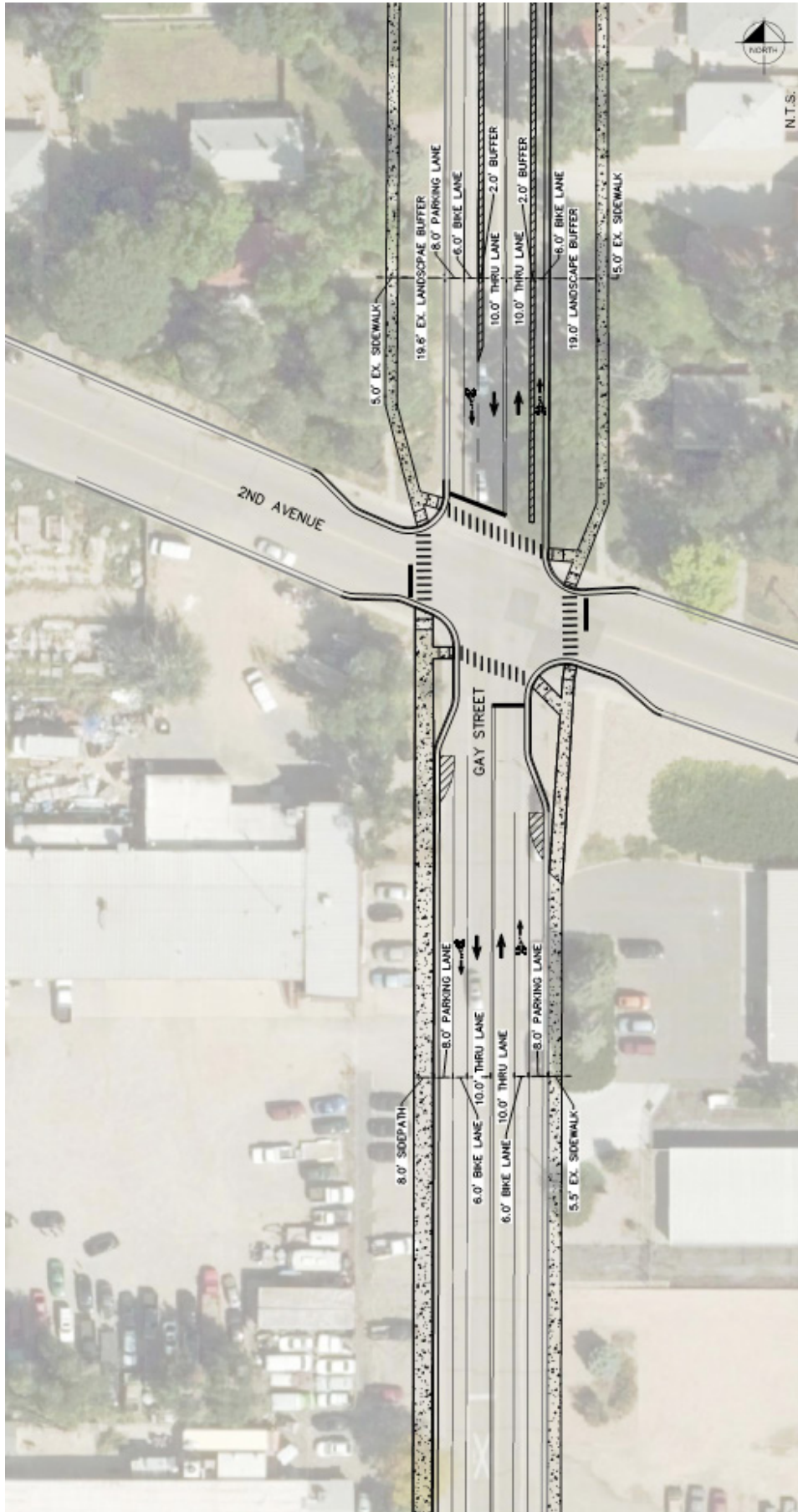


Gay Street Section D Design: Cross-section View



Right-of-way: 100 feet

Gay Street Section D Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Gay Street: Section D is anticipated to cost \$1,200,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section D are related to relocating curb and gutter to accommodate the proposed bike lanes and constructing the sidepath on the east side of the street. These cost estimates do not include undergrounding of the electric power transmission lines on the west side of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section D is LTS 3-4 (LTS 3 west side, LTS 4 east side). With the proposed design, the LTS on the east side will improve to LTS 2 resulting from the addition of a sidepath, representing a relatively comfortable environment for most people walking. The LTS on the west side is unchanged as no change is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section D is LTS 2. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section D. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

TRADEOFFS

The proposed corridor design for Gay Street: Section D relocates the west curb and gutter further west to accommodate on-street bike lanes and also adds a 8-foot sidepath behind the curb. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. These improvements mostly include landscaping and off-street parking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking



MOUNTAIN VIEW AVENUE: AIRPORT ROAD TO DEERWOOD DRIVE

The proposed improvements to Mountain View Avenue are shown in the cross-sections and plan views in this section. The proposed improvements generally establish buffered bike lanes or bike lanes (wider than existing) throughout the corridor's entire length; the City's first pilot of protected bike lanes is proposed at the east end of the corridor (Alpine Street to Deerwood Drive). The proposed improvements also establish a continuous sidepath on the north side of Mountain View Avenue (with a landscape buffer in certain segments) and minor sidewalk widening on the south side.

WHY IS THIS AN EMUC?

Mountain View Avenue is an east-west EMUC in north/central Longmont that generally connects Airport Road to Stephen Day Park and the Spring Gulch Trail. East-west connections are highly needed in this part of Longmont. Between Airport Road and Deerwood Drive, it provides direct connectivity to several parks: Hover Acres Park, Spangler Park, Clark Centennial Park and Stephen Day Park. It also connects to several trails, including the Rough & Ready Greenway, Spring Gulch #1, the Oligarchy Greenway, Longmont Supply Greenway and Spring Gulch #2. It is proximate to five schools: Longs Peak Middle, Skyline High, Timberline PK-8, Mountain View Elementary and Fall River Elementary. Other nearby destinations include the Centennial Swimming Pool (at Clark Centennial Park) and Longmont United Hospital. Mountain View Avenue provides direct connectivity to US 287/Main Street.

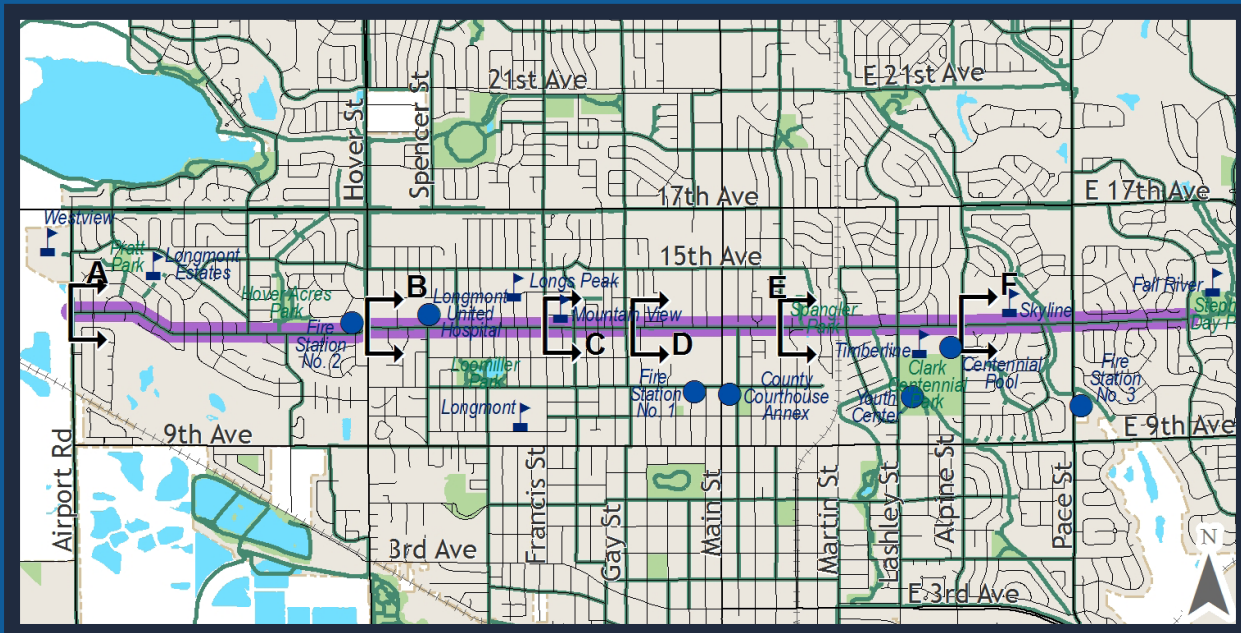
TOTAL COST ESTIMATE

The total cost for Mountain View Avenue is approximately \$2,870,000.

MOUNTAIN VIEW AVENUE: AIRPORT ROAD TO DEERWOOD DRIVE

RIGHT-OF-WAY, TRAFFIC VOLUME, AND COST SUMMARY

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Airport Road to Hover Street	70'	2,500-5,300	2,500-5,300	\$600,000
Section B: Hover Street to Francis Street	60'-70'	8,300-8,500	8,600	\$600,000
Section C: Francis Street to Bross Street	55'-75'	7,300	7,700	\$300,000
Section D: Bross Street to Collyer Street	56'-75'	5,600-7,100	6,000	\$700,000
Section E: Collyer Street to Alpine Street	55'-73'	4,500	4,600-7,100	\$600,000
Section F: Alpine Street to Deerwood Drive	62'-80'	3,200-6,000	3,500-6,000	\$70,000

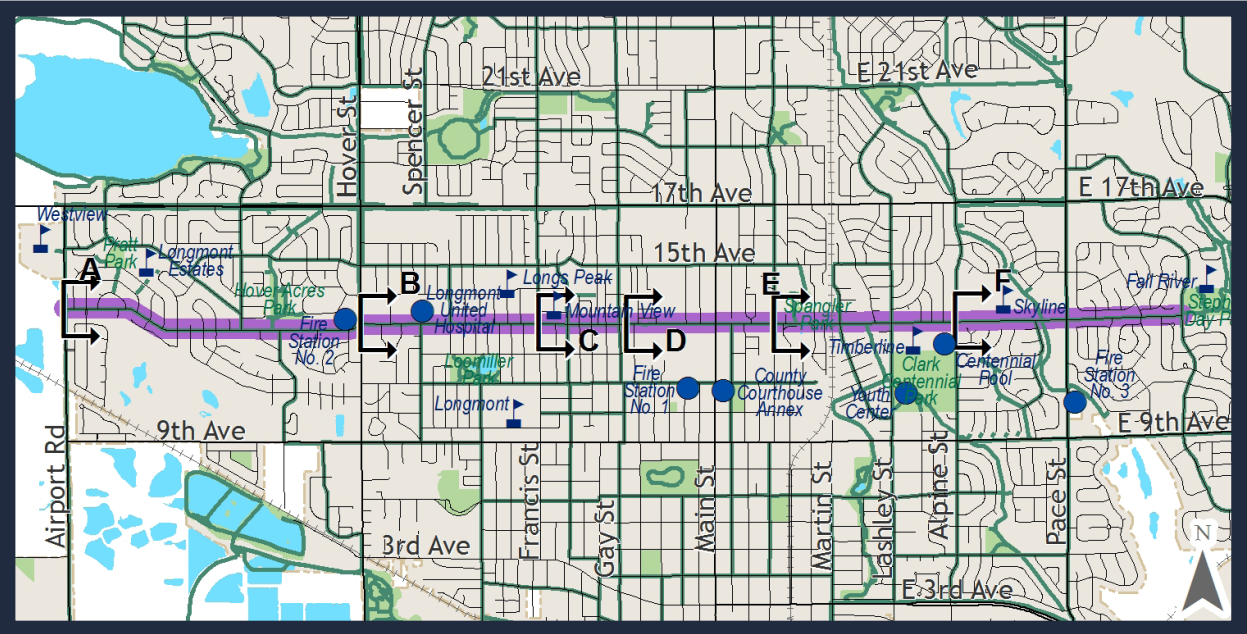


PROPOSED DESIGN

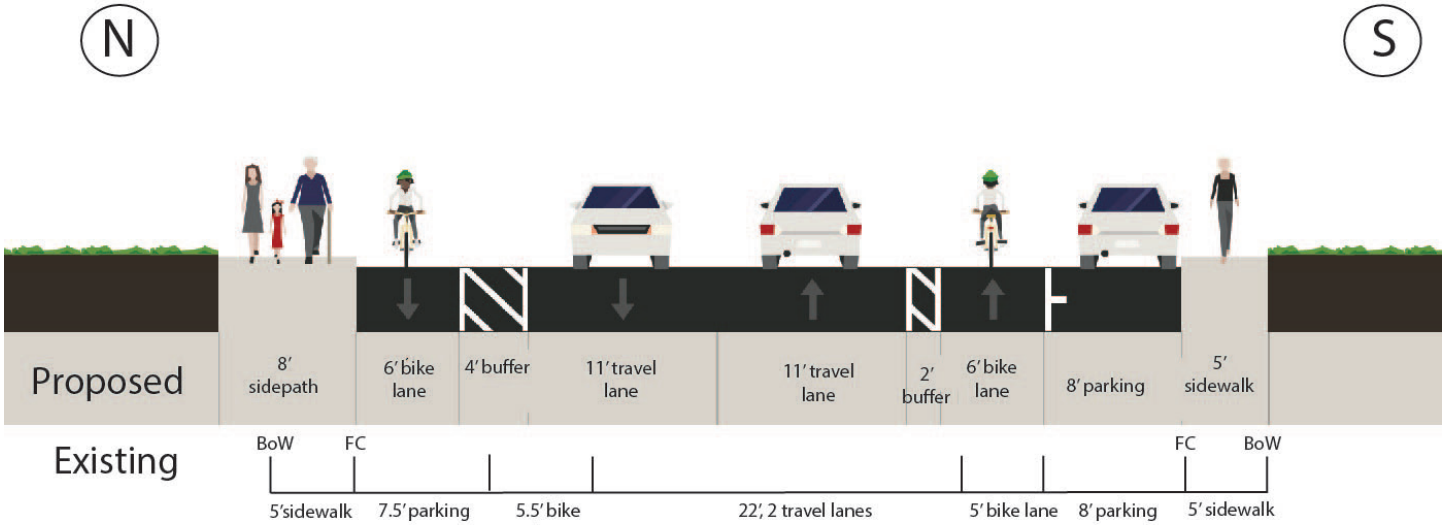
The corridor is comprised of various segments where the existing cross-section changes significantly. Cross-section view and plan view diagrams for each segment follow.

SECTION A: AIRPORT ROAD TO HOVER STREET

Section Map



Mountain View Avenue Section A Design: Cross-section View



Right-of-way: 70 feet

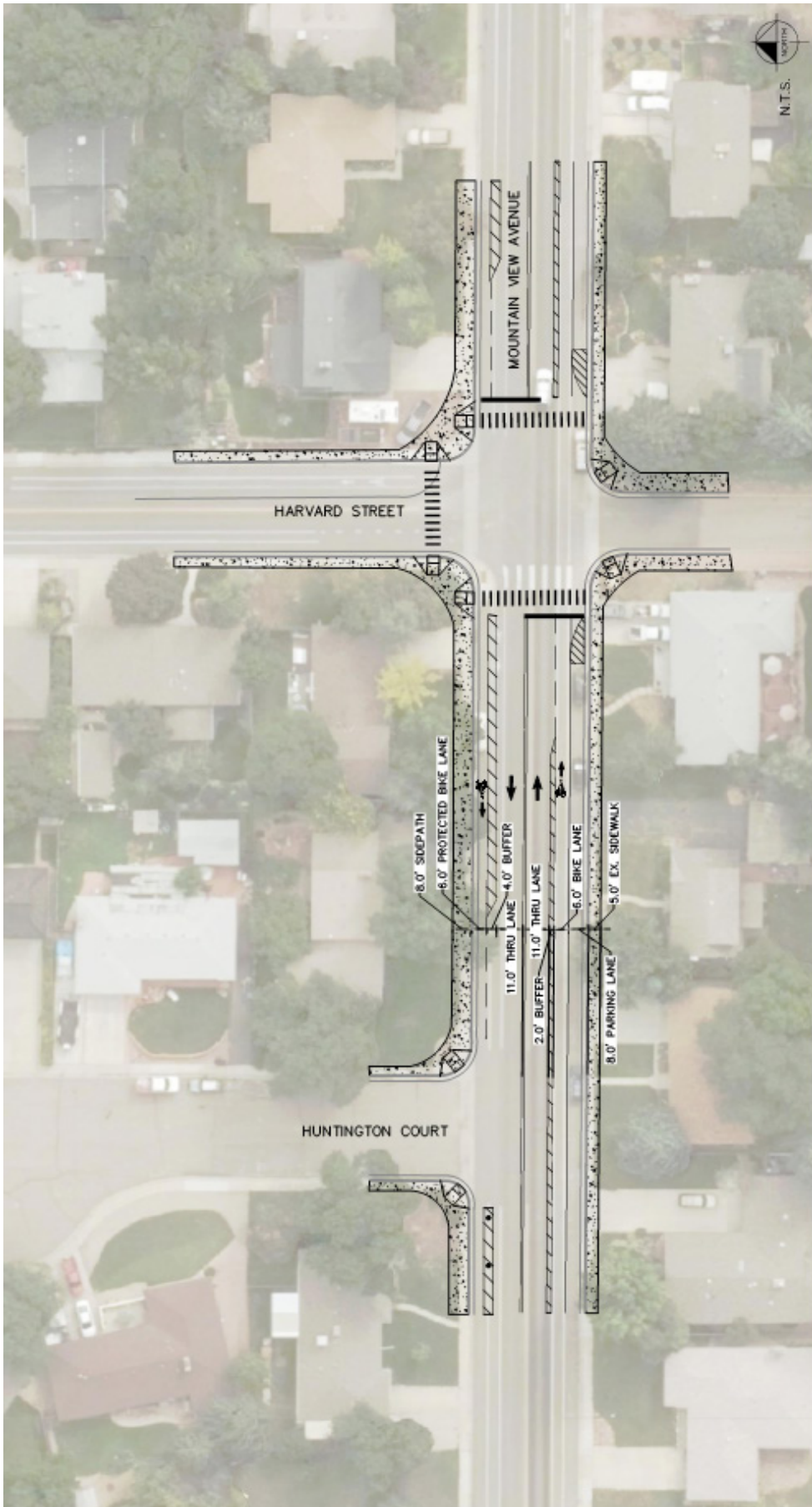
Bulbouts exist at approximately five locations on Mountain View Avenue. By providing at least 6 feet of combined buffer width (shown in the cross-section as a 4-foot buffer on the north side and a 2-foot buffer on the south side), the cross-section is intended to accommodate relocation of the existing bulbouts into the buffer space. The wider, 4-foot buffer may vary between the north and south sides of Mountain View Avenue to accommodate bulbouts at their approximate existing locations.



Existing bulbouts west of Fordham Street
Image Source: Google 2018

MOUNTAIN VIEW AVENUE: AIRPORT ROAD TO DEERWOOD DRIVE

Mountain View Avenue Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Mountain View Avenue: Section A is anticipated to cost \$600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to restriping the traveled way (removing and installing pavement markings) and widening the sidewalk on the north side.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 3. With the proposed design, the LTS on the north side will improve to LTS 2 resulting from the addition of a side-path, representing a relatively comfortable environment for most people walking. The LTS on the south side is unchanged as no change is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 3. With the proposed design, the LTS will improve to LTS 2, representing a relatively comfortable environment for most people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section A. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

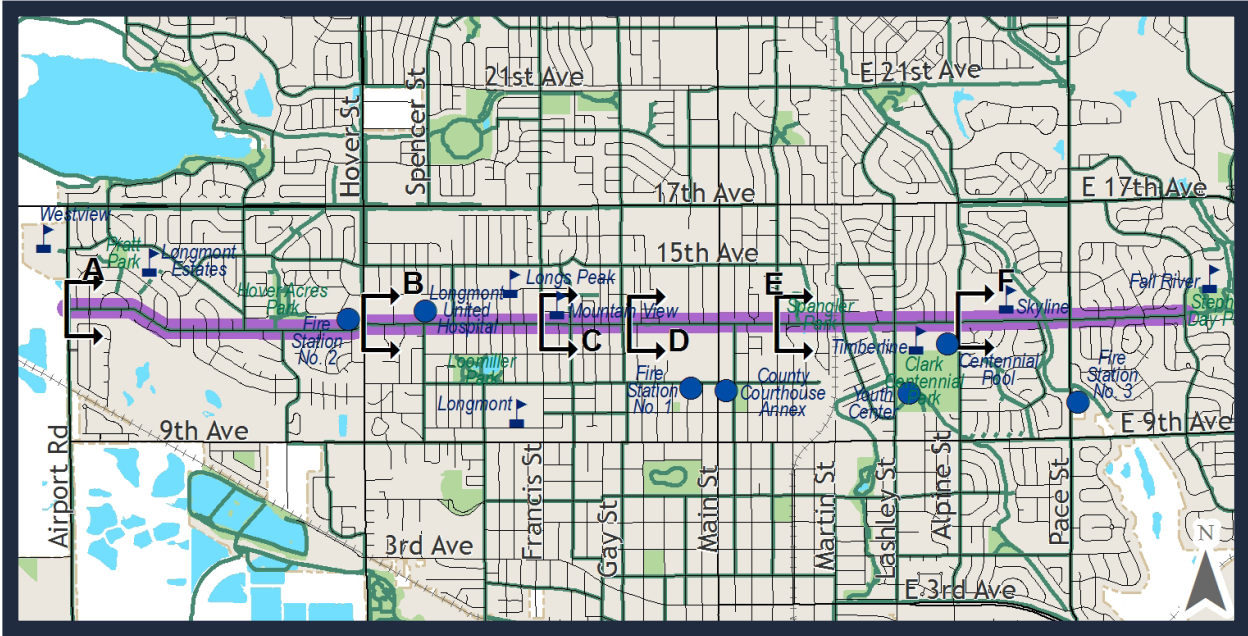
TRADEOFFS

The proposed corridor design for Mountain View Avenue: Section A widens the sidewalk on the north side from a 5-foot sidewalk into an 8-foot sidepath. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. This widening will likely impact improvements in the right-of-way such as landscaping, fences and mailboxes, as well as some public utilities such as street lights.

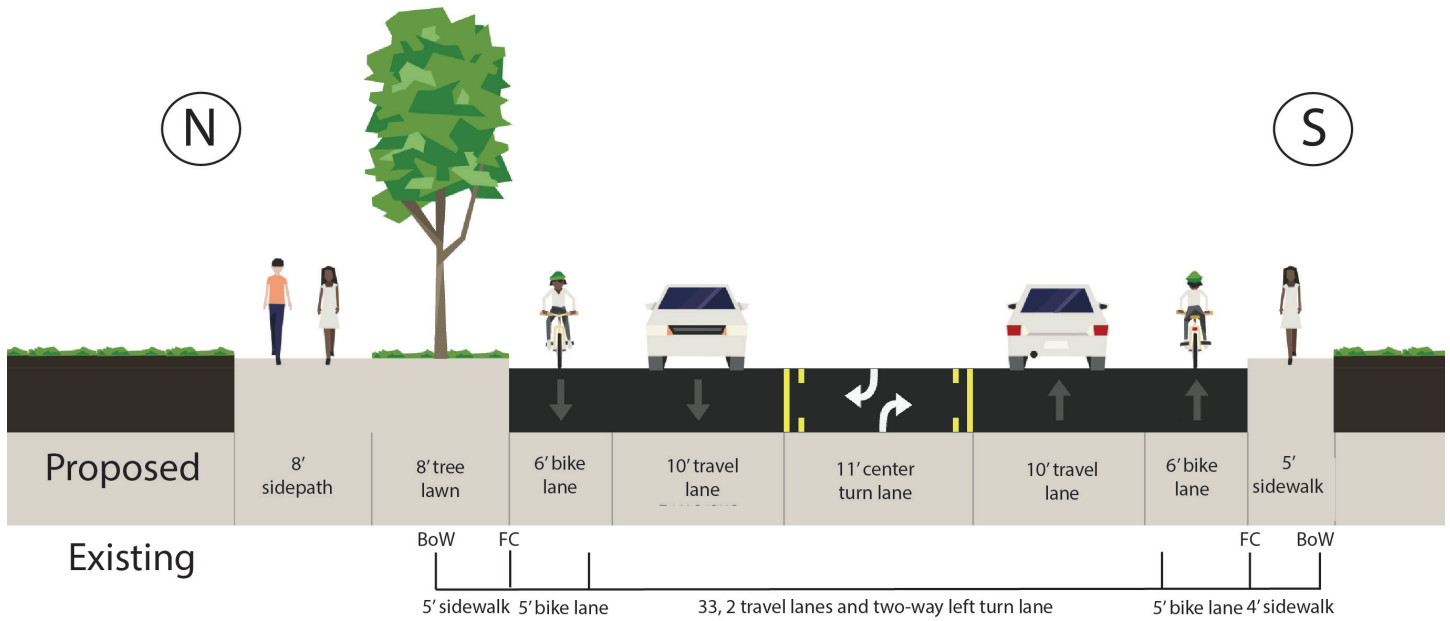
Upgrading the existing bike lanes on both sides of the street to buffered bike lanes requires removing parking from one side of the street. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Mountain View Avenue suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

SECTION B: HOVER STREET TO FRANCIS STREET

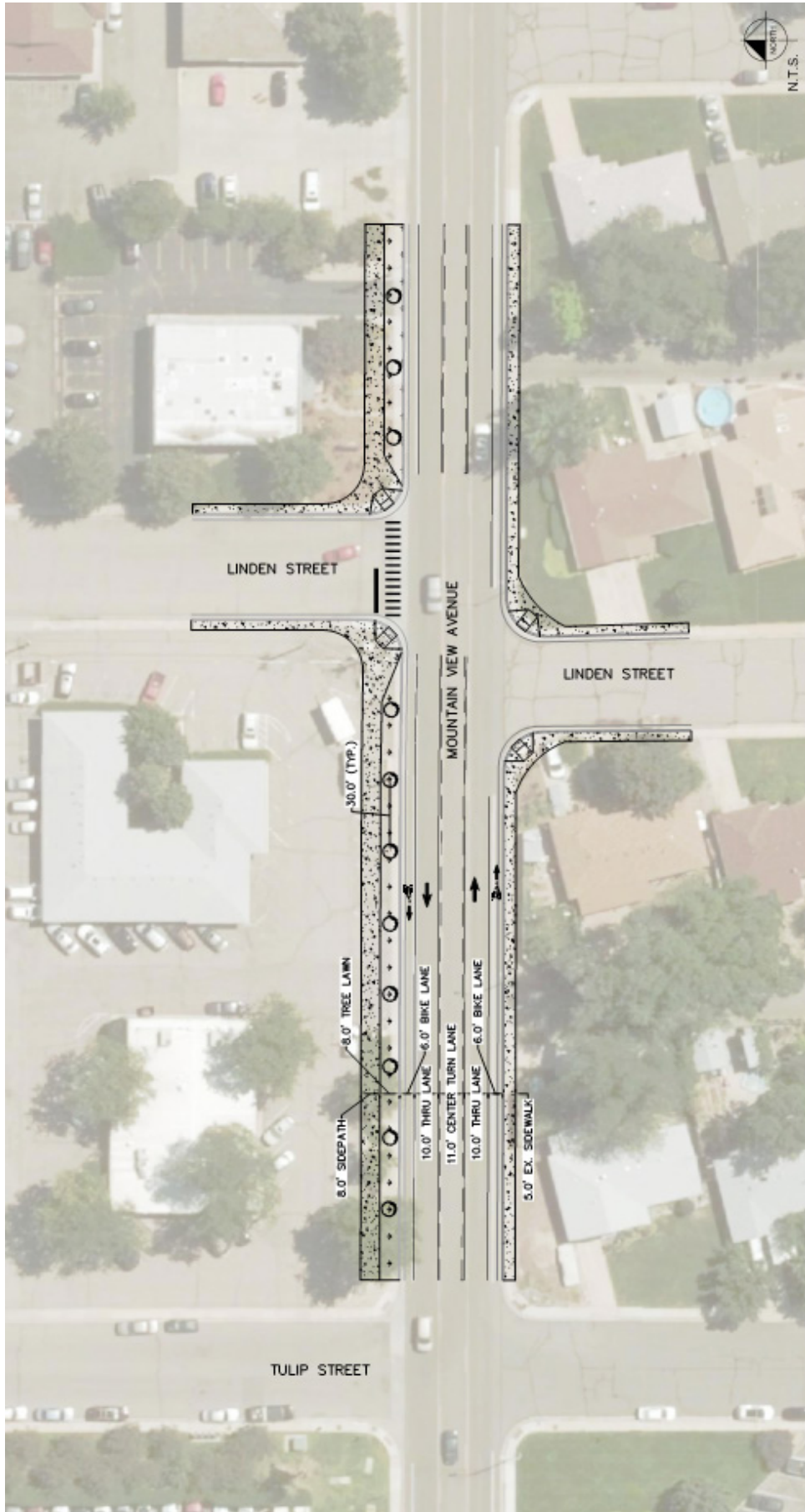
Section Map



Mountain View Avenue Section B Design: Cross-section View



Mountain View Avenue Section B Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Mountain View Avenue: Section B is anticipated to cost \$600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section B are related to widening the sidewalk on and adding a landscape buffer to the north side.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section B is LTS 3. With the proposed design, the LTS on the north side will improve to LTS 1 resulting from the addition of a sidepath and landscape buffer, representing a highly friendly environment for people walking. The LTS on the south side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section B is LTS 3. With the proposed design, the LTS will improve to LTS 2, representing a relatively comfortable environment for most people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section B. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

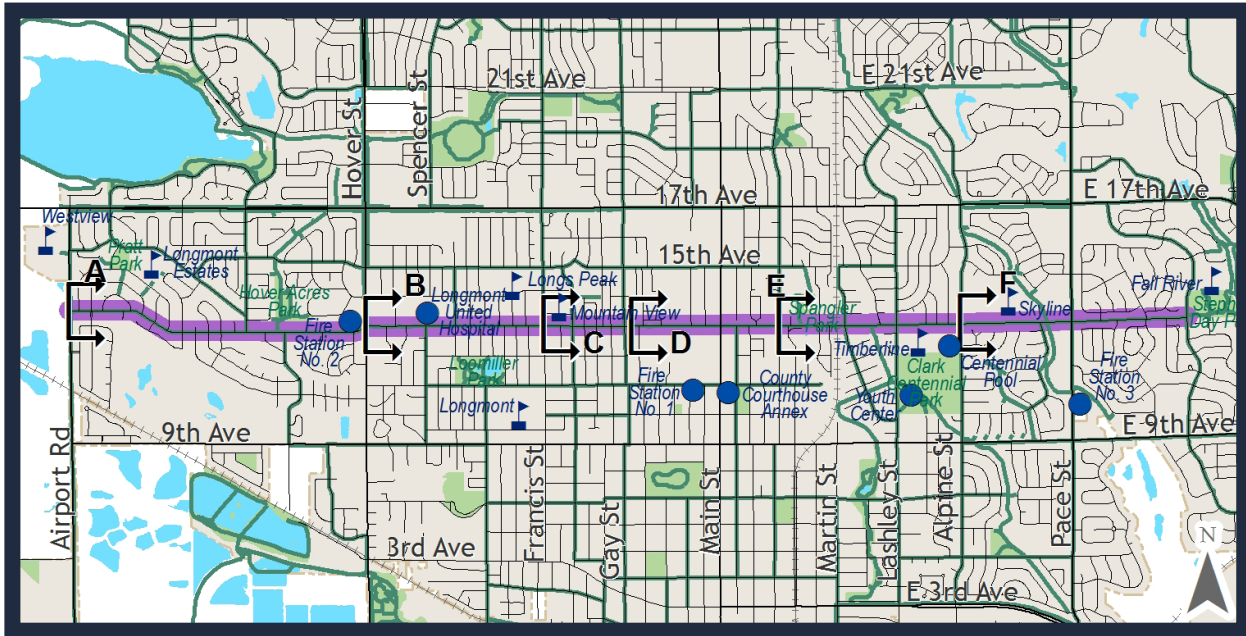
TRADEOFFS

The proposed corridor design for Mountain View Avenue: Section B widens the sidewalk on the north side from a 5-foot sidewalk into an 8-foot sidepath and adds a landscape buffer wide enough for street trees. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. This widening will likely impact improvements in the right-of-way such as landscaping, fences and mailboxes, as well as some public utilities such as street lights.

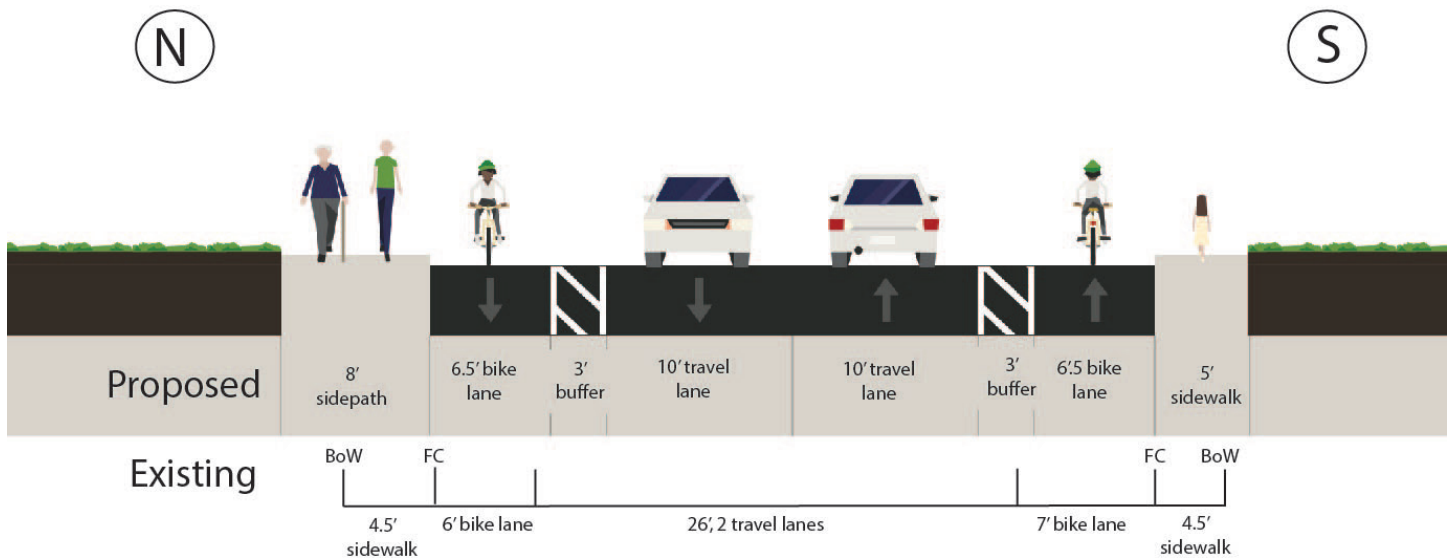
The proposed corridor design also narrows travel lanes to widen bike lanes. The resulting travel and turn lane widths are within the range recommended by mainstream design guidance, so there is no significant tradeoff expected from this design.

SECTION C: FRANCIS STREET TO BROSS STREET

Section Map

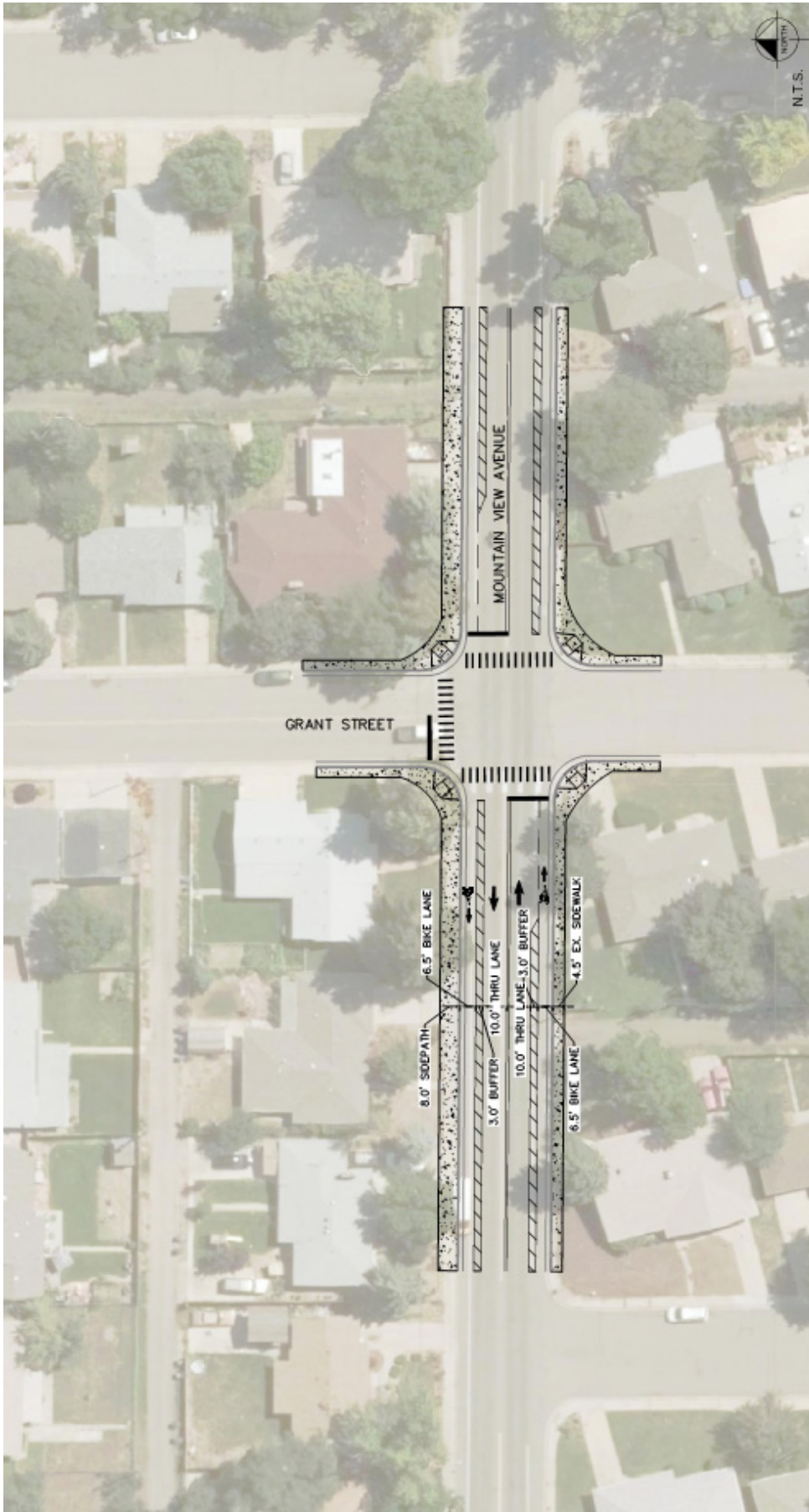


Mountain View Avenue Section C Design: Cross-section View



Right-of-way: 55-75 feet

Mountain View Avenue Section C Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Mountain View Avenue: Section C is anticipated to cost \$300,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section C are related to restriping the traveled way (removing and installing pavement markings) and widening the sidewalk on both sides of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section C is LTS 3. With the proposed design, the LTS on the north side will improve to LTS 2 resulting from the widening of the existing sidewalk into a sidepath, representing a relatively comfortable environment for most people walking. The LTS on the south side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section C is LTS 3. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section C. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

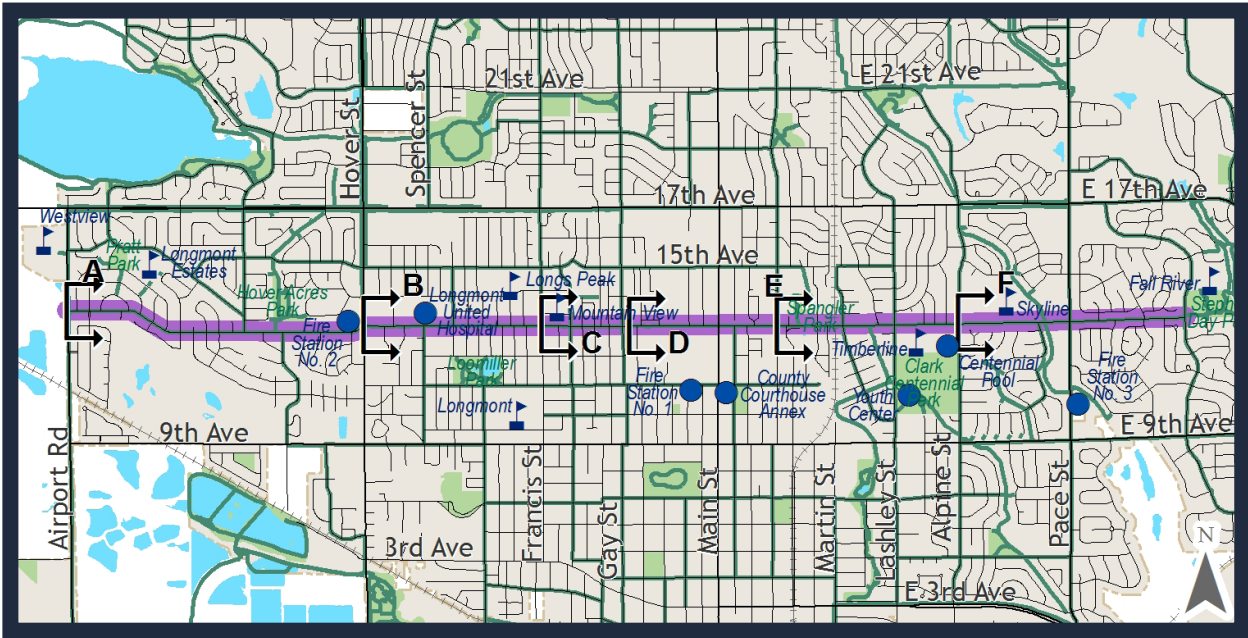
TRADEOFFS

The proposed corridor design for Mountain View Avenue: Section C widens the sidewalk on both sides of the street. Although this widening occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design. On the north side of the street, the existing 4.5-foot sidewalk is being replaced with an 8-foot sidewalk, likely impacting improvements in the right-of-way such as landscaping and mailboxes, as well as some public utilities such as street lights. On the south side of the street, sidewalk widening is only by ½-foot and will be achieved where possible through city sidewalk rehabilitation maintenance.

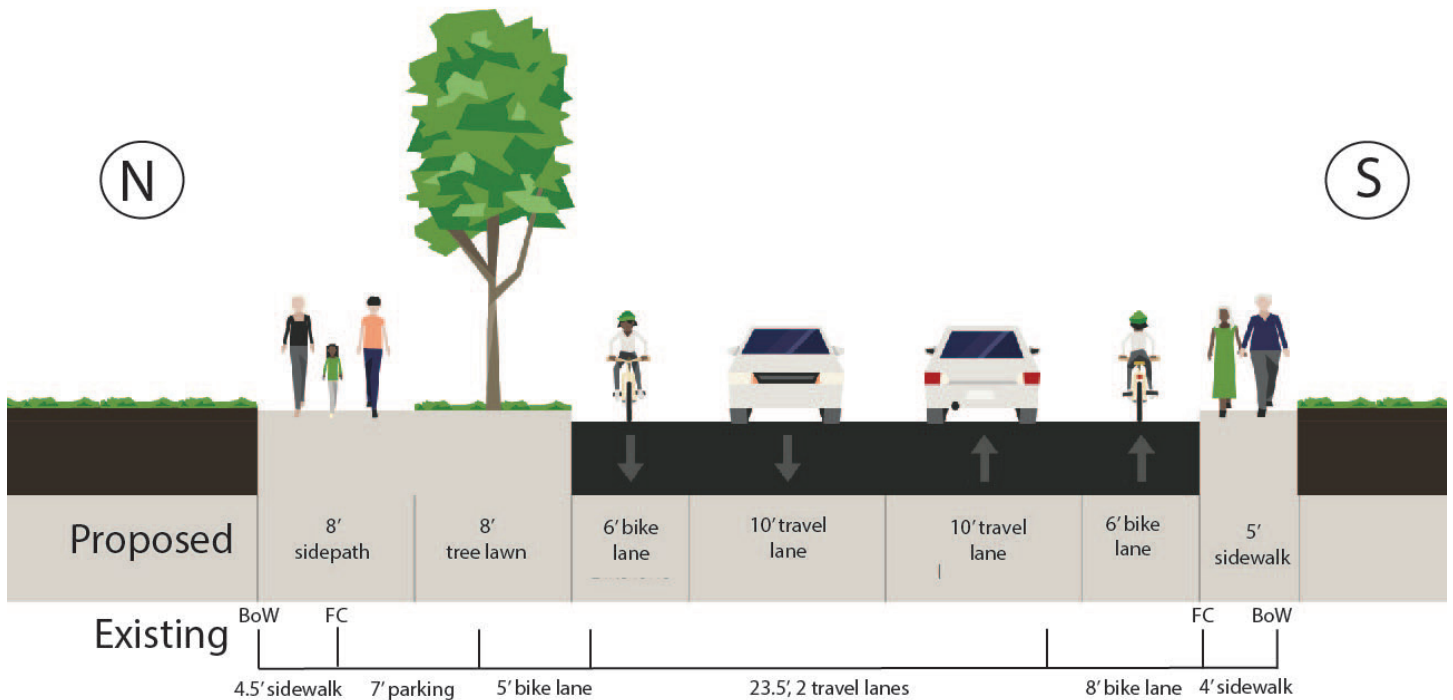
The proposed corridor design also narrows travel lanes to widen bike lanes. The resulting travel lane widths are within the range recommended by mainstream design guidance, so there is no significant tradeoff expected from this design.

SECTION D: BROSS STREET TO COLLYER STREET

Section Map

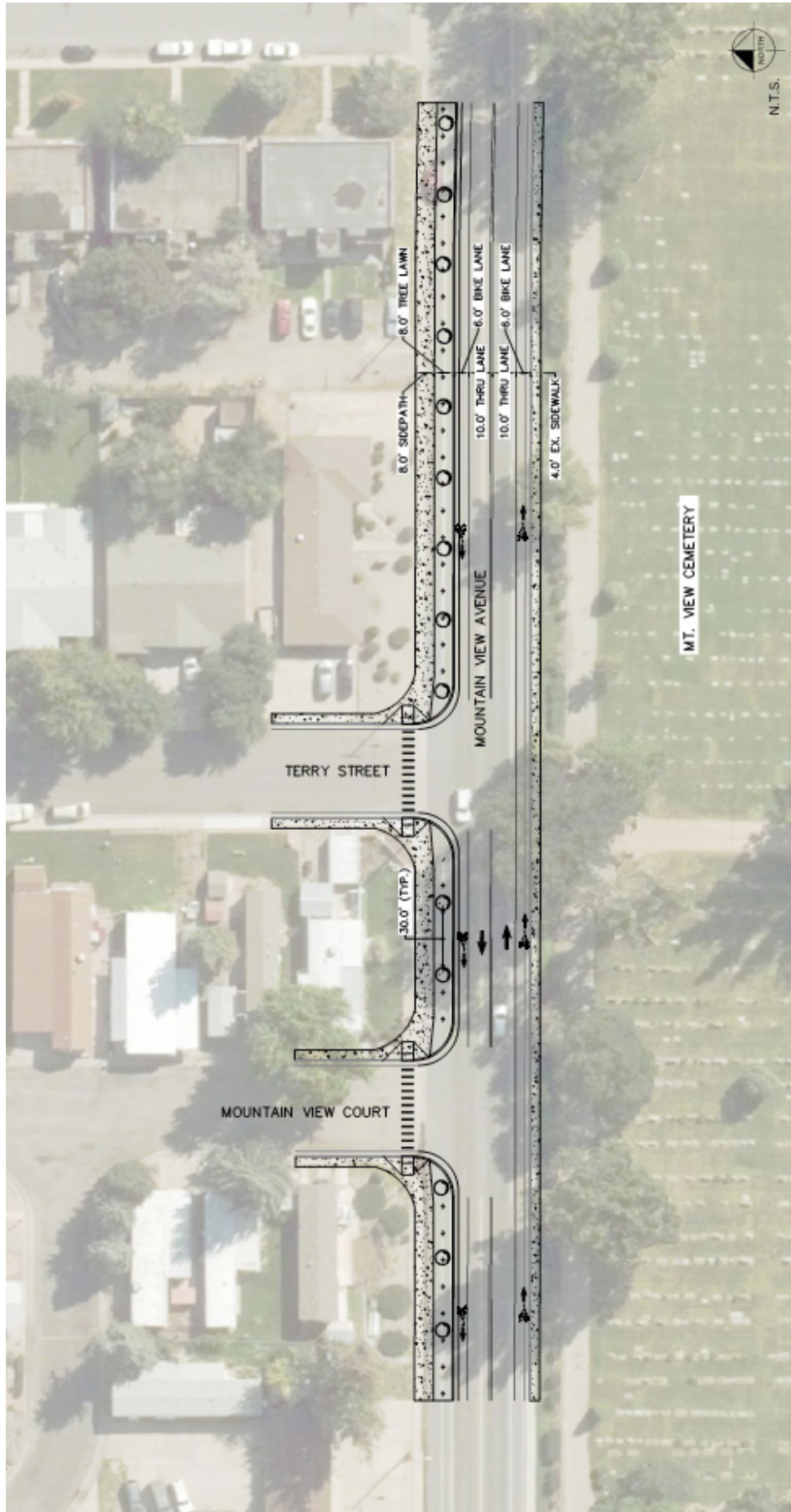


Mountain View Avenue Section D Design: Cross-section View



Right-of-way: 56-75 feet

Mountain View Avenue Section D Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Mountain View Avenue: Section D is anticipated to cost \$700,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section D are related to relocating curb and gutter on the north side of the street, widening the sidewalk on and adding a landscape buffer to the north side of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section D is LTS 3. With the proposed design, the LTS on the north side will improve to LTS 1 resulting from the widening of the existing sidewalk into a sidepath, representing a highly friendly environment for people walking. The LTS on the south side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section D is LTS 3. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section D. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

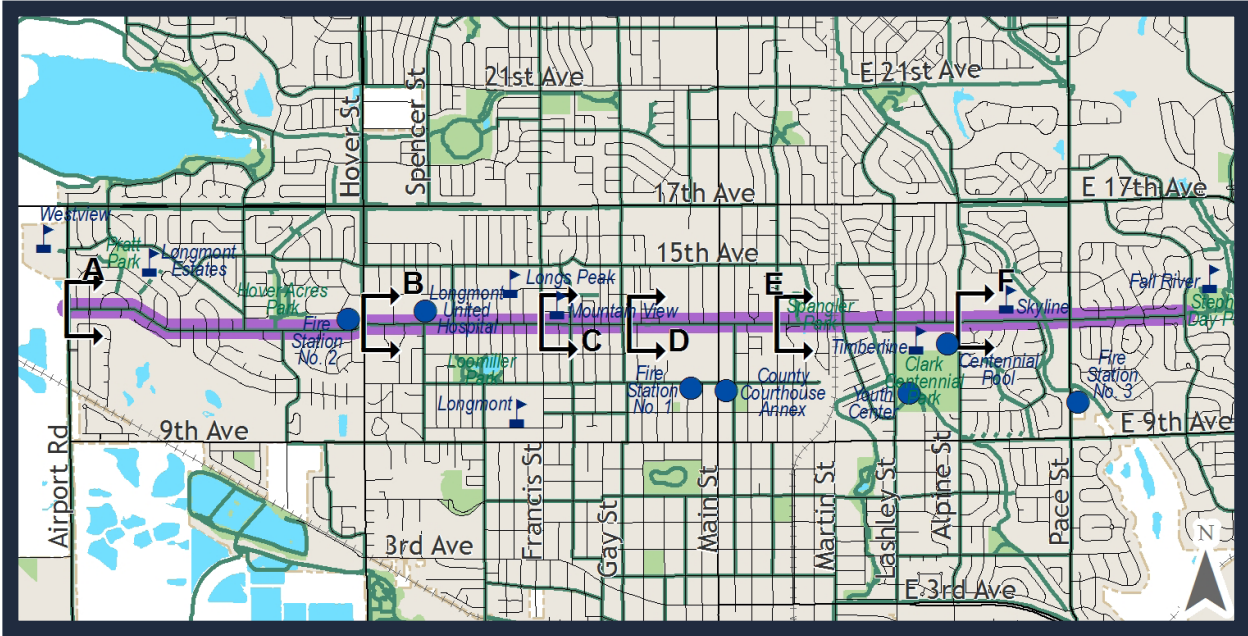
WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

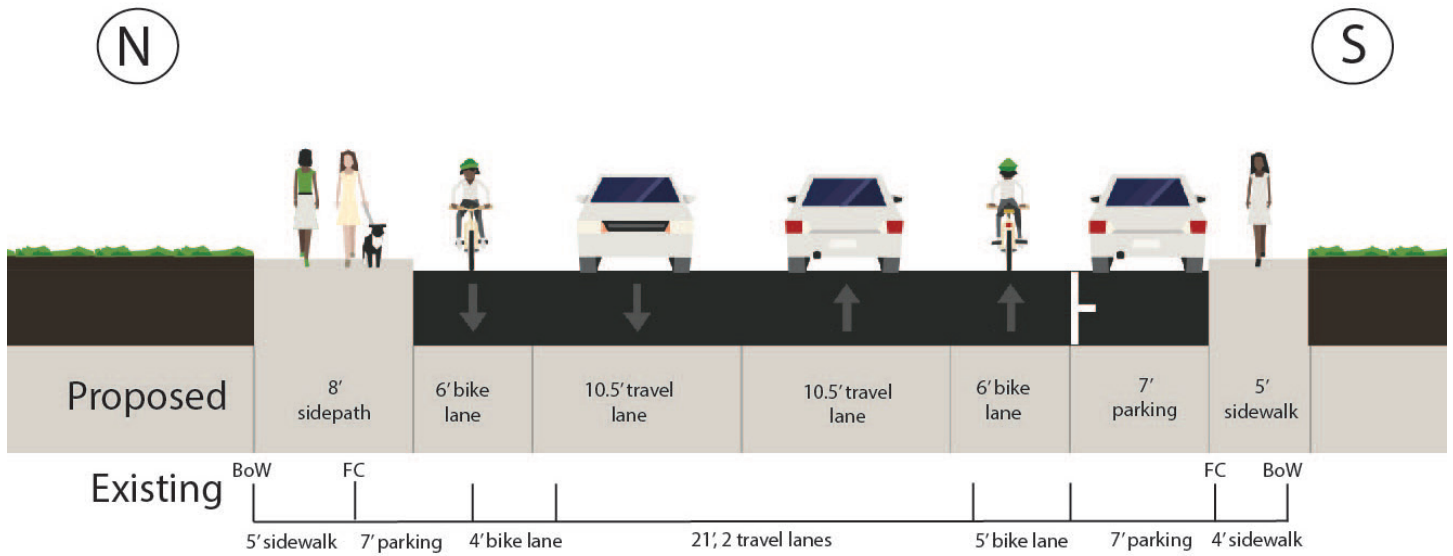
The proposed corridor design for Mountain View Avenue: Section D repurposes on-street parking on the street’s north side to accommodate a sidepath and landscape buffer with street trees. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Mountain View Avenue suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

SECTION E: COLLYER STREET TO ALPINE STREET

Section Map



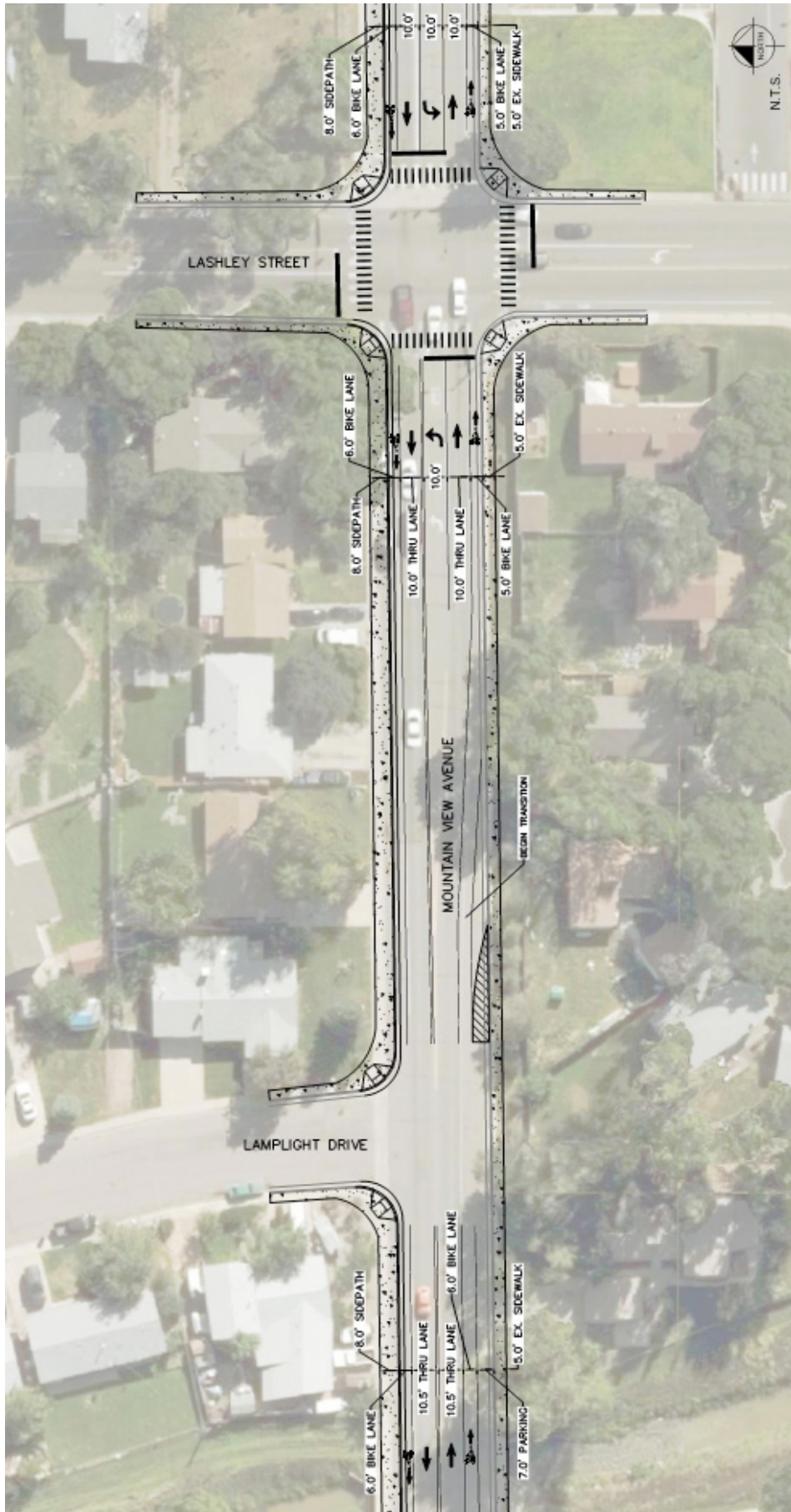
Mountain View Avenue Section E Design: Cross-section View



Right-of-way: 55-73 feet

MOUNTAIN VIEW AVENUE: AIRPORT ROAD TO DEERWOOD DRIVE

Mountain View Avenue Section E Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Mountain View Avenue: Section E is anticipated to cost \$600,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section E are related to relocating curb and gutter on the north side of the street and widening the sidewalk on both sides of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section E is LTS 3. With the proposed design, the LTS on the north side will improve to LTS 2 resulting from the widening of the existing sidewalk into a sidepath, representing a relatively comfortable environment for most people walking. The LTS on the south side is unchanged as only minimal widening is proposed to the sidewalk.

For People Biking On-street

The existing LTS for people biking on-street in Section E is LTS 3. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section E. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

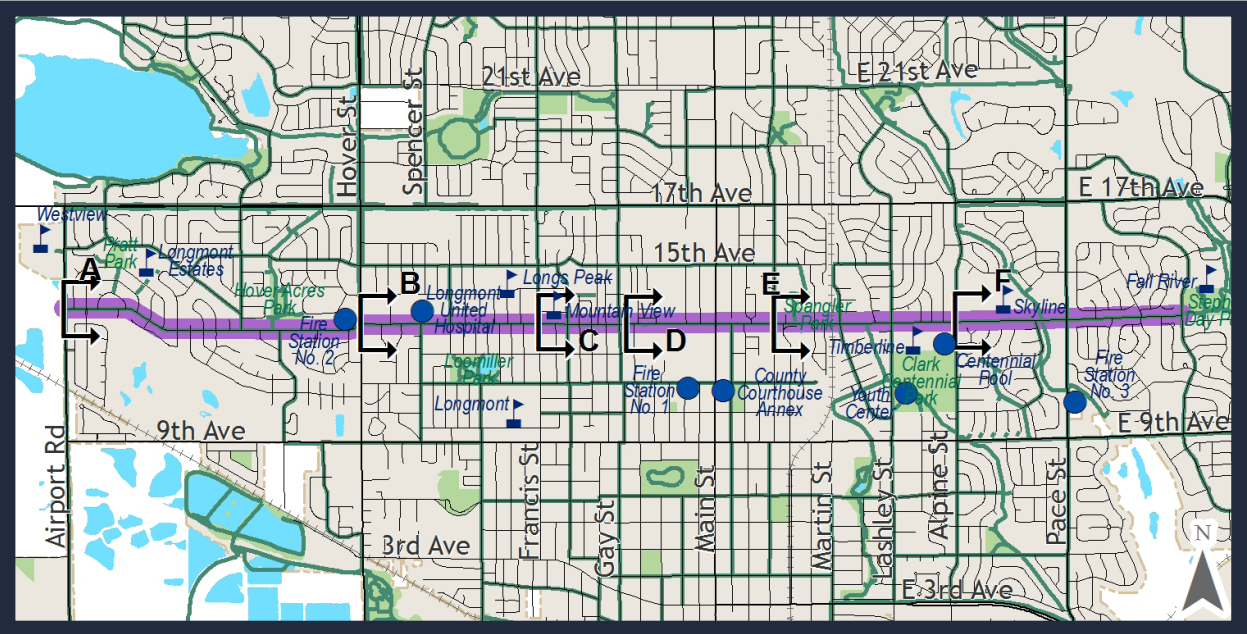
TRADEOFFS

The proposed corridor design for Mountain View Avenue: Section E widens the sidewalk on both sides of the street. On the north side, this widening is from a 5-foot sidewalk into an 8-foot sidepath. To accommodate this widening, the curb is relocated so that sidewalk widening does not extend beyond the existing back-of-walk. On the south side of the street, sidewalk widening is only by 1-foot and will be achieved where possible through city sidewalk rehabilitation maintenance.

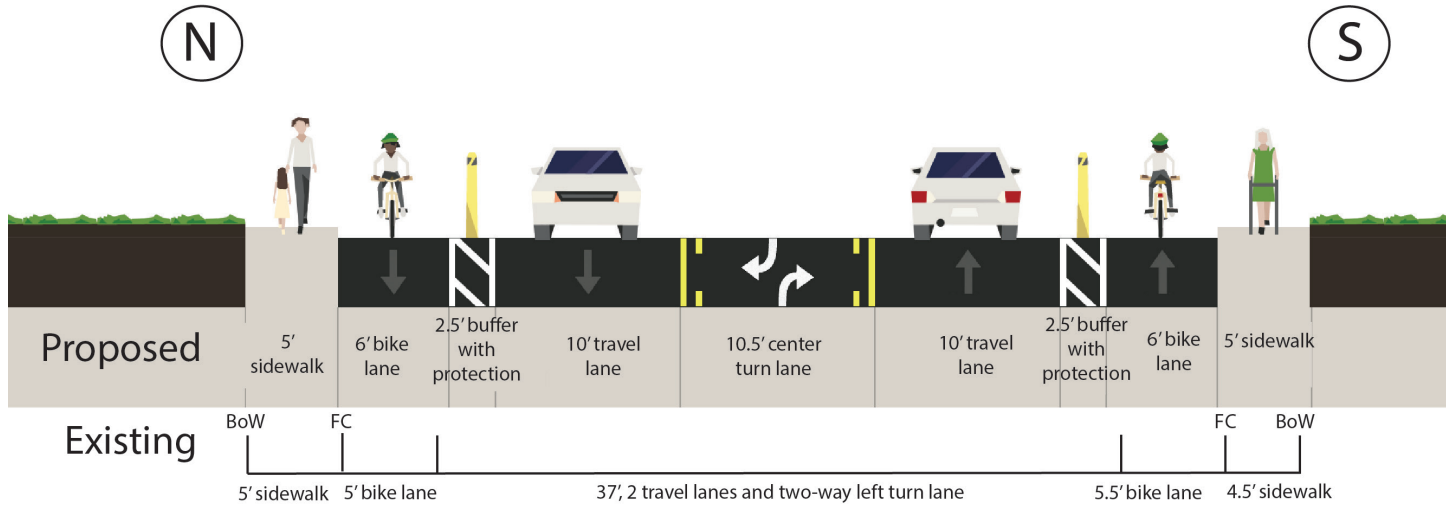
The proposed corridor design for Mountain View Avenue: Section E also repurposes on-street parking on the street’s north side to accommodate wider bike lanes. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Mountain View Avenue suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.

SECTION F: ALPINE STREET TO DEERWOOD DRIVE

Section Map

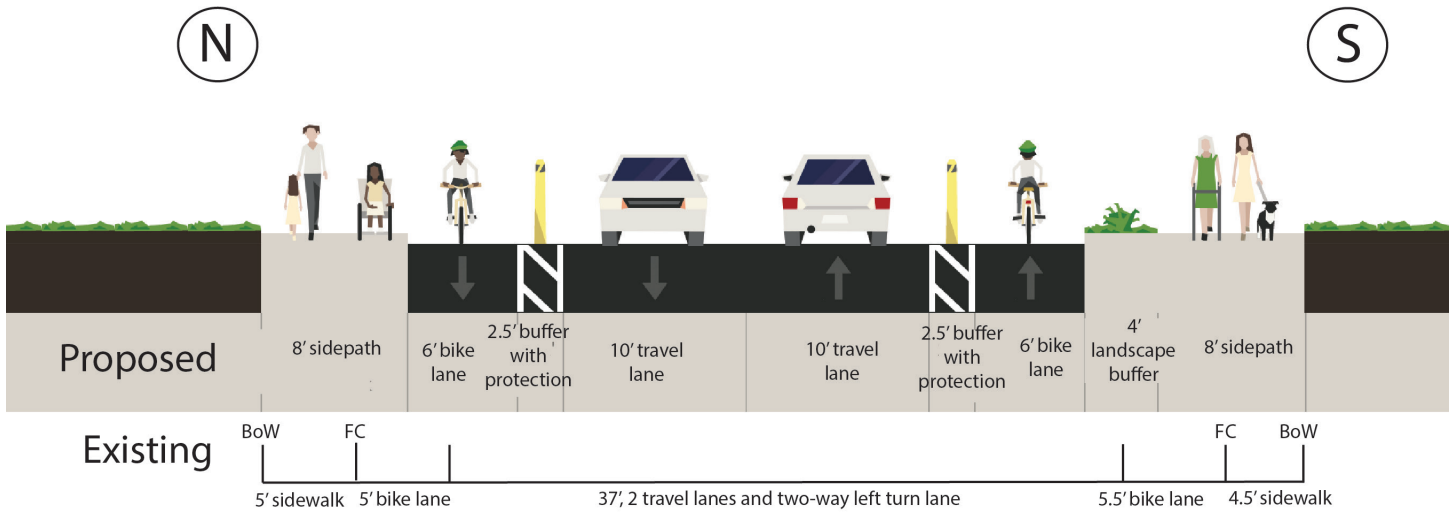


**Mountain View Avenue Section F Design: Cross-section View
Option 1**



Right-of-way: 62-80 feet

Option 2

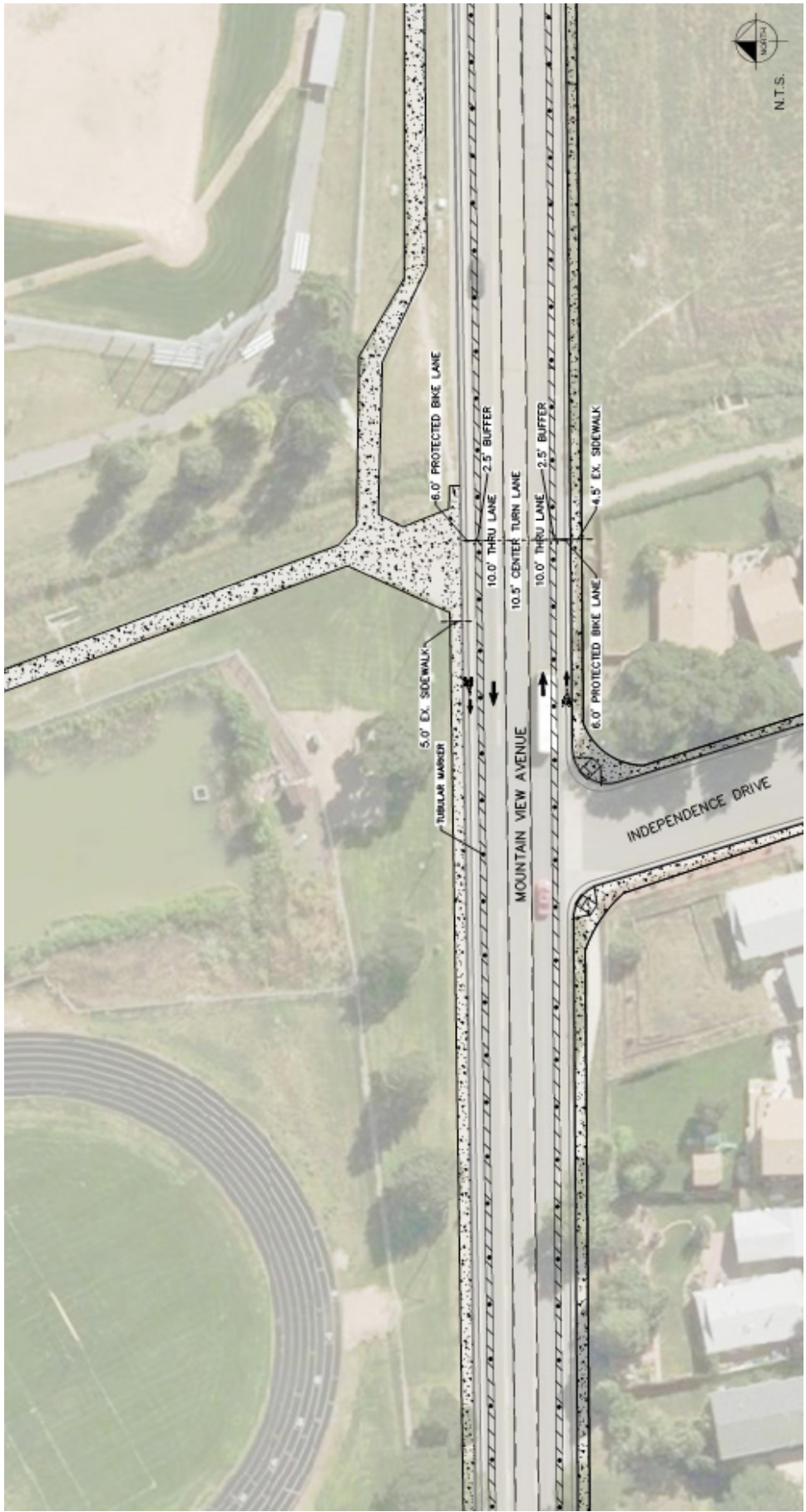


Right-of-way: 62-80 feet

Two options are provided for Section F to provide options with and without the two-way left-turn lane. Option 1 maintains the two-way left-turn lane, which will decrease delay of through vehicles caused by turning vehicles. However, retaining the two-way left-turn lane left no additional room for more comfortable pedestrian facilities. Option 2 removes the two-way left-turn lane, potentially resulting in additional delay depending on the turning volumes, but provides a comfortable pedestrian facility on both sides of the street with 8-foot sidepaths and a landscape buffer on the south side. More detailed analysis of traffic volumes and traffic operations is necessary to determine the feasibility of Option 1; the two-way left-turn lane may be needed in some locations of this section (such as near Skyline High School) but not in others.

MOUNTAIN VIEW AVENUE: AIRPORT ROAD TO DEERWOOD DRIVE

Mountain View Avenue Section F Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Mountain View Avenue: Section F Option 1 is anticipated to cost \$70,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section F are related to restriping the traveled way (removing and installing pavement markings).

LEVEL OF TRAFFIC STRESS (LTS)

The existing LTS for people walking on Section F is LTS 3. The LTS on both sides is unchanged as only minimal widening is proposed to the sidewalk on the south.

Option 2

The existing LTS for people walking on Section F is LTS 3. The LTS on both sides will improve to LTS 1, resulting from the widened sidepath on both sides. This represents a highly friendly environment for people walking.

For People Biking On-street

Option 1

The existing LTS for people biking on-street in Section F is LTS 3. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

Option 2

The existing LTS for people biking on-street in Section F is LTS 3. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

Option 1

No off-street bikeway currently exists on Section F. The proposed design does not add an off-street bikeway to Section F.

Option 2

No off-street bikeway currently exists on Section F. The proposed design adds a sidepath to both sides of Mountain View Avenue. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.”

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

Option 1

The proposed corridor design narrows travel lanes to widen bike lanes and add a buffer with vertical protection. The resulting travel and turn lane widths are within the range recommended by main-stream design guidance, so there is no significant tradeoff expected from this design.

Option 2

The proposed corridor design repurposes a two-way left-turn lane to widen the sidewalk on the north side from a 4-foot sidewalk into an 8-foot sidepath, and to widen the 4.5-foot sidewalk on the south side into an 8-foot sidepath with landscape buffer. Two-way left-turn lanes generally add capacity to travel lanes by reducing delay caused by turning vehicles. Where turning volumes are relatively low, streets may operate well without a two-way left-turn lane; however, if turning volumes are higher a streets' capacity may be reduced without two-way left-turn lanes. Additional study should be completed through the project's design to understand the effects of removing the two-way left-turn lane.



PRICE ROAD: GAY STREET TO NELSON ROAD

The proposed improvements to Price Road are shown in the cross-sections and plan views in this section. The proposed improvements generally establish a sidepath throughout the entire length of the corridor, travel lanes shared for people biking and people driving, and landscape buffers in some sections, some of which feature street trees.

WHY IS THIS AN EMUC?

Price Road is a north-south EMUC in central Longmont. It connects the EMUC on Gay Street to sidepaths along Ken Pratt Boulevard and includes a direct connection to the St. Vrain Greenway. Together, the Ken Pratt Boulevard sidepaths and EMUCs on Price Road and Gay Street help create a continuous route to Downtown Longmont from the south.

TOTAL COST ESTIMATE

The total cost for Price Road is approximately \$780,000.

RIGHT-OF-WAY AND TRAFFIC VOLUMES

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Gay Street to Boston Avenue	50'	8,300	7,900	\$80,000
Section B: Boston Avenue to cul de sac	60'	500	500	\$300,000
Section C: Forbes Court to Nelson Road	50'-60'	900	900	\$400,000



PROPOSED DESIGN

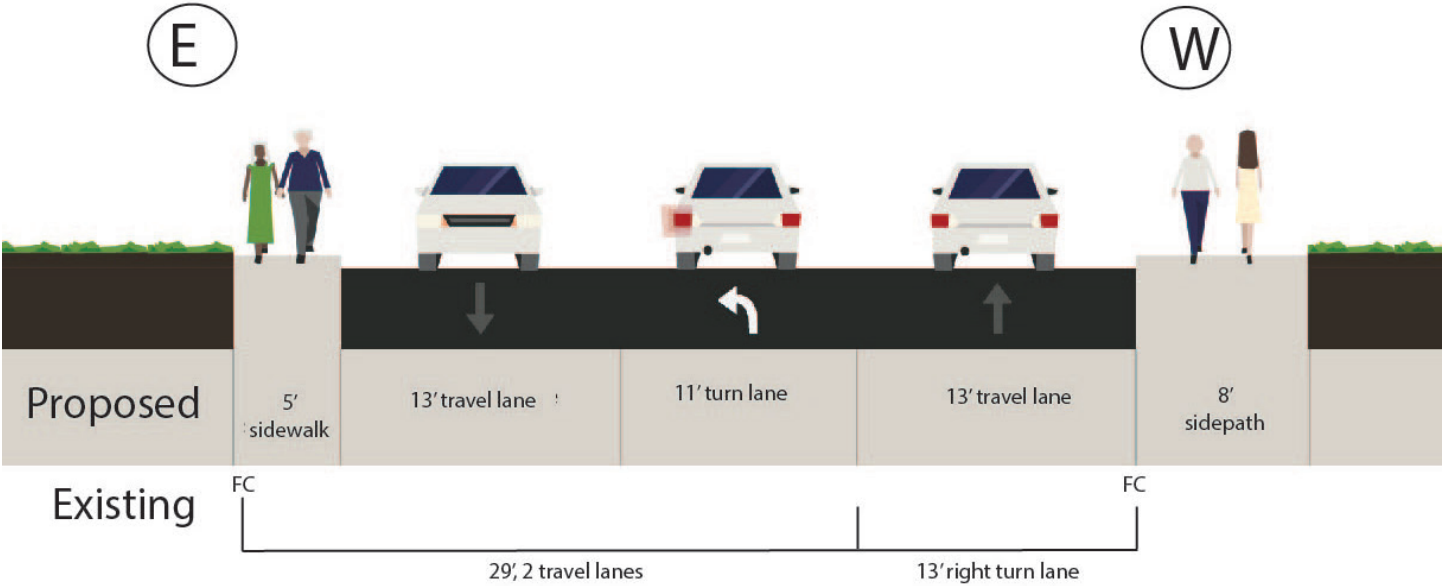
The corridor is comprised of various segments where the existing cross-section changes significantly. Cross-section view and plan view diagrams for each segment follow.

SECTION A: GAY STREET TO BOSTON AVENUE

Section Map



Price Road Section A Design: Cross-section View



Right-of-way: 50 feet

This cross-section shows a 8-foot sidepath on the west side of Price Road that connects to the proposed 8-foot sidepath on the west side of Gay Street. In the future, a new traffic signal at the Price Road/Boston Avenue intersection (as a part of the at-grade railroad crossing project) provides an opportunity for the sidepath to transition to the east side of Price Road.

Price Road Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Price Road: Section A is anticipated to cost \$80,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to relocating curb and gutter on the east side of the street and constructing a sidewalk or sidepath on both sides of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 4. With the proposed design, the LTS on the both sides will improve to LTS 3 resulting from the construction of the sidewalk and sidepath, representing a somewhat comfortable environment for people walking. The LTS would be further improved by providing some form of buffer between travel lanes and the sidewalk; however, adding such a buffer is not feasible in the right-of-way available.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 4. The proposed design does not affect LTS for people biking on-street. The LTS would be further improved by adding bike lanes or protected bike lanes; however, adding such facilities is not feasible in the right-of-way available. Instead, this cross-section aims to establish a complete sidepath for people biking off-street.

For People Biking Off-street

No off-street bikeway currently exists on Section A. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

The proposed corridor design for Price Road: Section A adds a sidepath to the west side of Price Road and a sidewalk to the east side of Price Road. The sidewalk on the east side is accommodated by relocating the curb and gutter on the east side of the street adjacent to the railroad. Although construction in these rights-of-way present complications in design and permitting, the outcome tradeoffs in these areas are likely acceptable.

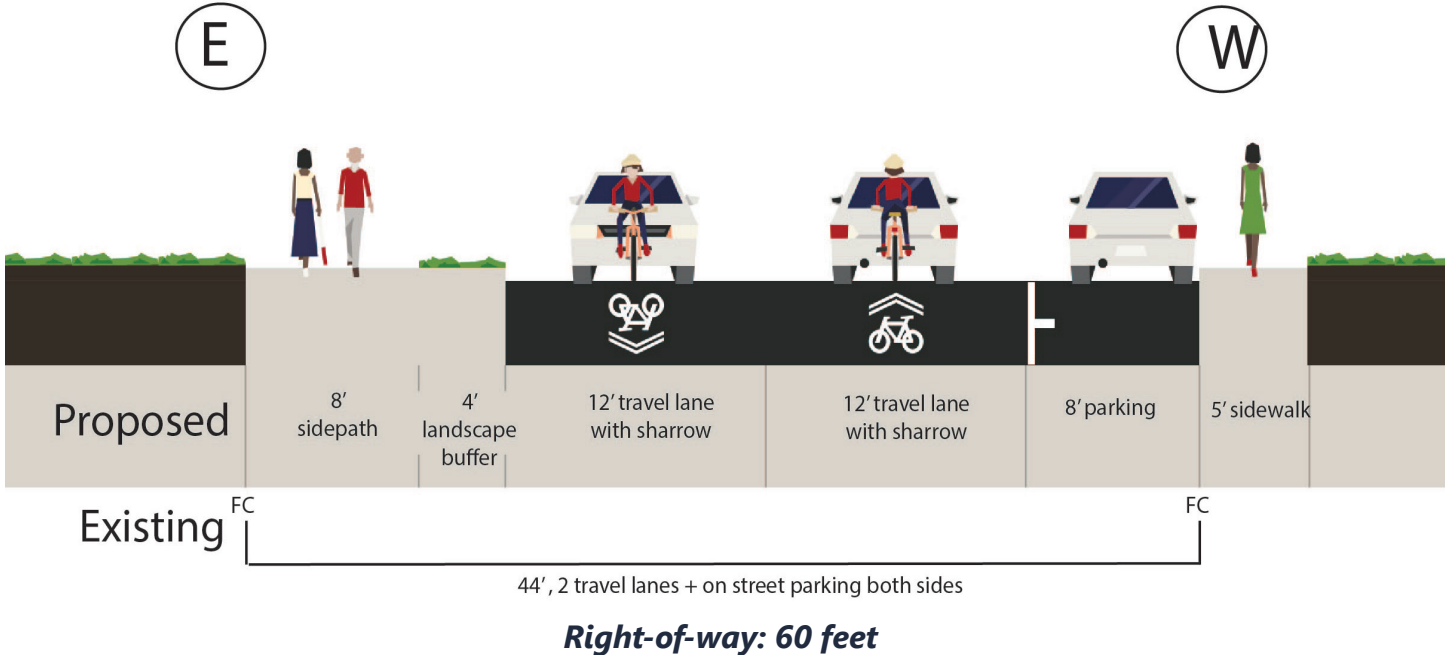
The sidepath on the west side will be constructed behind the existing curb. Although this construction occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design, mostly including off-street parking in this section.

SECTION B: BOSTON AVENUE TO CUL DE SAC

Section Map



Price Road Section B Design: Cross-section View



The 12-foot lanes are provided for heavy vehicles expected to be traveling along this corridor to access the primarily industrial area. At the north end of this section, a new traffic signal at the Price Road/Boston Avenue intersection provides an opportunity for the sidepath to transition to the west side of Price Road.

Price Road Section B Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Price Road: Section B is anticipated to cost \$300,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section B are related to relocating curb and gutter on the east side of the street and constructing a sidewalk or sidepath on both sides of the street.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section B is LTS 4. With the proposed design, the LTS on the west side of the street will improve to LTS 3, resulting from the 5-foot sidewalk, and the LTS on the east side of the street will improve to LTS 1, resulting from the 8-foot sidepath and landscape buffer. This represents a highly friendly environment for people walking.

For People Biking On-street

The existing LTS for people biking on-street in Section B is LTS 2. With the proposed design, the LTS will remain LTS 2, representing a relatively comfortable environment for most people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section B. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

The proposed corridor design for Price Road: Section B adds a sidepath with landscape buffer to the east side of Price Road and a sidewalk to the west side of Price Road. The sidepath and landscape buffer on the east side is accommodated by relocating the curb and gutter on the east side of the street adjacent to the railroad. Although construction in these rights-of-way present complications in design and permitting, the outcome tradeoffs in these areas are likely acceptable. The sidepath and landscape buffer are also adjacent to high voltage power lines. However, the sidepath and landscape buffer are placed so as to avoid impacts to this utility.

The sidewalk on the west side will be constructed behind the existing curb. Although this construction occurs within the City’s right-of-way, some adjacent property owners have made improvements in the right-of-way that may be impacted by the proposed corridor design, mostly including landscaping and off-street parking in this section.

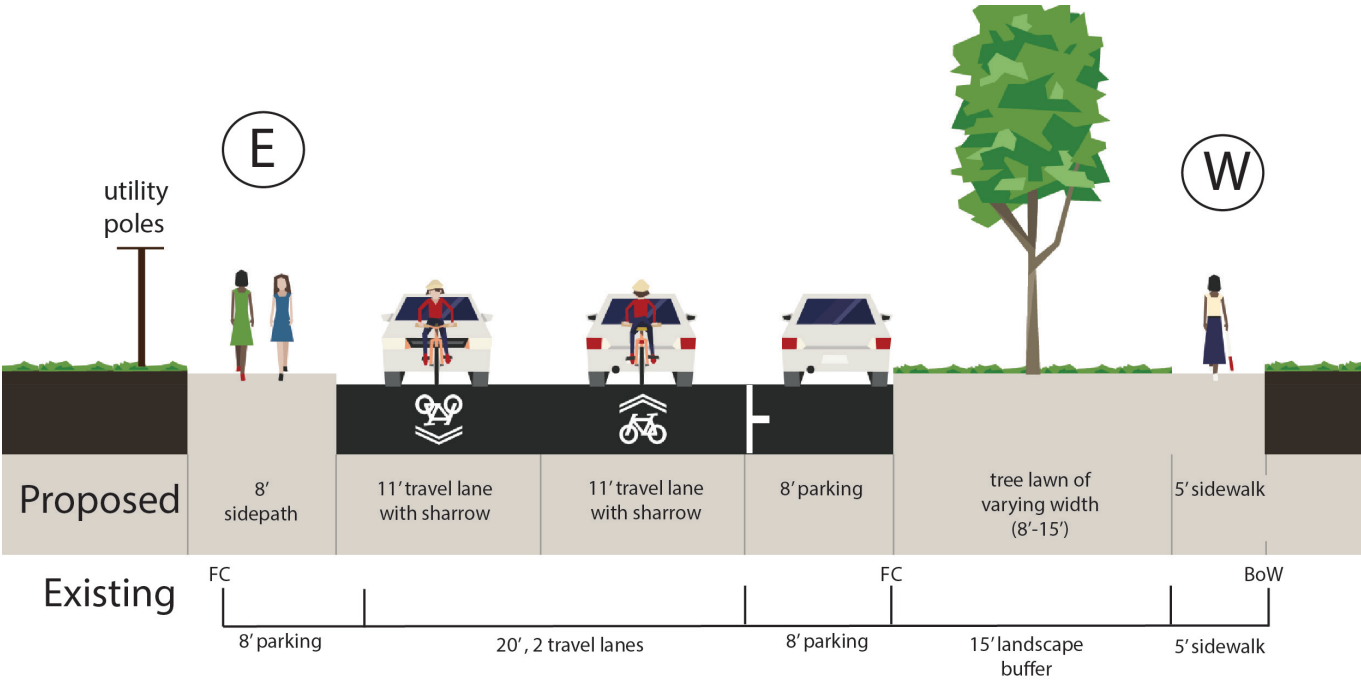
Lastly, the proposed corridor design for Price Road: Section B repurposes on-street parking to accommodate the proposed sidewalk, sidepath and landscape buffer. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Price Road suggest that on-street parking in this section is used by nearby businesses as longer-term vehicle storage that otherwise should be accommodated off-street. Discussions with nearby business owners are likely necessary during this section's design to collaborate on a vehicle storage strategy.

SECTION C: FORBES COURT TO NELSON ROAD

Section Map

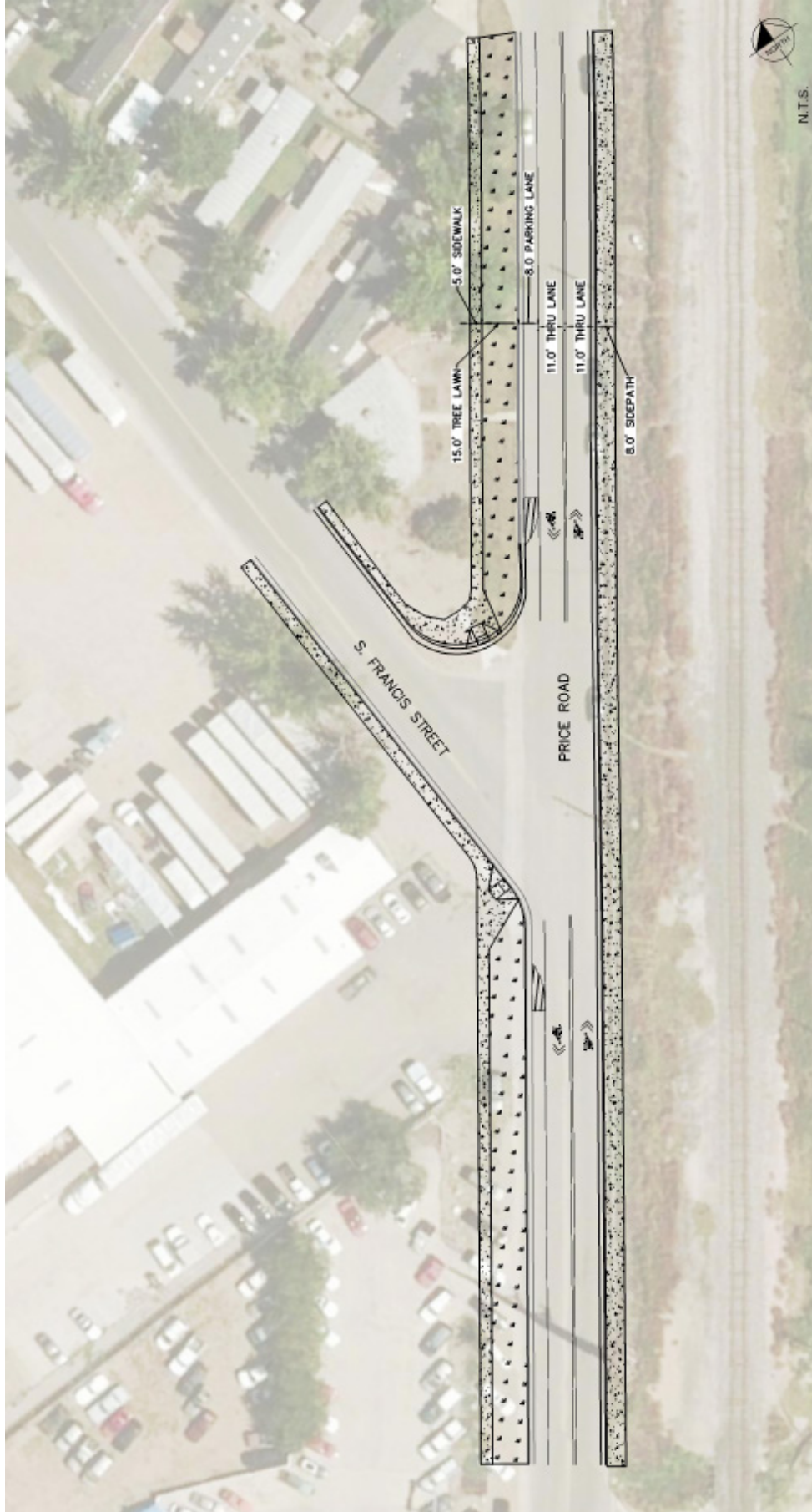


Price Road Section C Design: Cross-section View



Right-of-way: 50-60 feet

Price Road Section C Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Price Road: Section C is anticipated to cost \$400,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section C are related to relocating curb and gutter on the east side of the street and constructing a sidewalk or sidepath on both sides of the street and a landscape buffer.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section C is LTS 3/4 (LTS 3 on the west side and LTS 4 on the east side). With the proposed design, the LTS on the east side of the street improves to LTS 3, representing a somewhat comfortable environment for people walking. The LTS on the west side of Price Road remains LTS 3 due to the relatively narrow sidewalk (5 feet wide).

For People Biking On-street

The existing LTS for people biking on-street in Section C is LTS 2. With the proposed design, the LTS will remain LTS 2, representing a relatively comfortable environment for most people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section C. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

The proposed corridor design for Price Road: Section C adds a sidepath to the east side of Price Road. The sidepath on the east side is accommodated by relocating the curb and gutter on the east side of the street adjacent to the railroad. Although construction in these rights-of-way present complications in design and permitting, the outcome tradeoffs in these areas are likely acceptable. The sidepath is adjacent to high voltage power lines. However, it is placed to avoid impacts to this utility.

The proposed corridor design for Price Road: Section C repurposes on-street parking on the east side of the street to accommodate the proposed sidepath. On-street parking supply is a tradeoff of this design. Anecdotal observations of parking on Price Road suggest that on-street parking utilization is low on this section. However, a more detailed analysis of on-street parking demand and supply should be completed through the corridor’s design.



SUNSET STREET: CREEKSIDE DRIVE TO PLATEAU ROAD

The proposed improvements to Sunset Street are shown in the cross-section and plan view in this section. The proposed improvements establish continuous bike lanes on this section of Sunset Street, as well as a sidepath with landscape buffer on the east side of Sunset Street.

WHY IS THIS AN EMUC?

Sunset Street is designated as an EMUC due to the connections it provides to the Left Hand Greenway and a proposed trail along Dry Creek to south of the corridor.

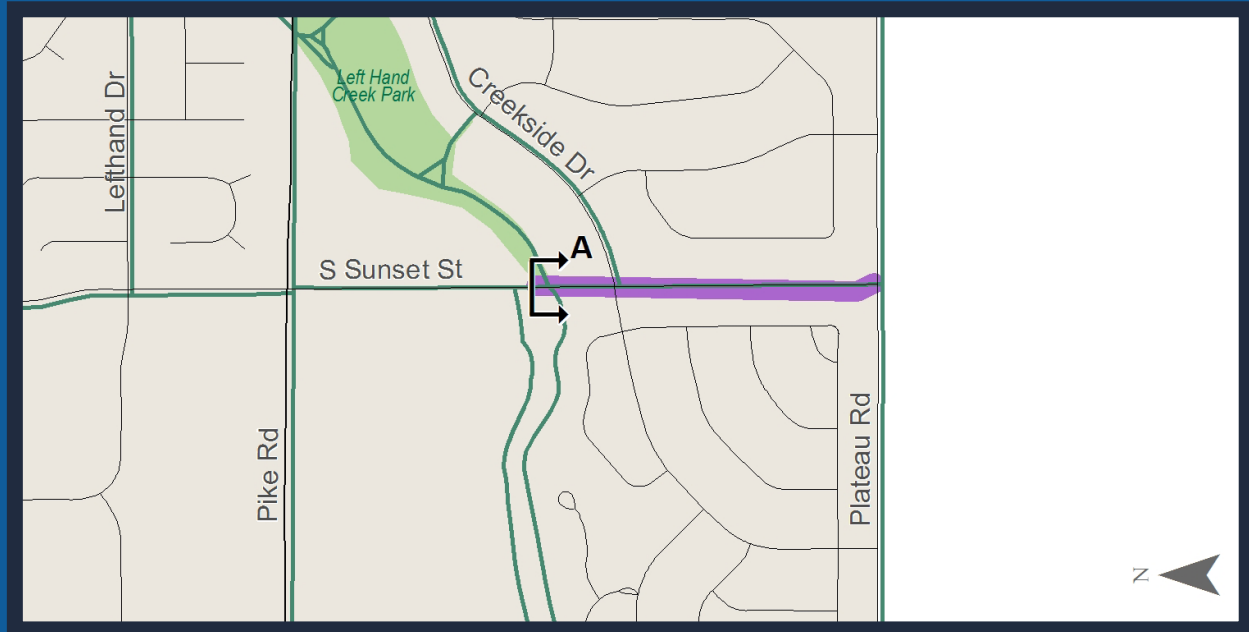
TOTAL COST ESTIMATE

The total cost for Sunset Street is approximately \$300,000.

SUNSET STREET: CREEKSIDE DRIVE TO PLATEAU ROAD

RIGHT-OF-WAY, TRAFFIC VOLUME, AND COST SUMMARY

SECTION	RIGHT-OF-WAY	EXISTING VOLUME (AVERAGE DAILY TRAFFIC-ADT)	FORECASTED (2040) VOLUME (AVERAGE DAILY TRAFFIC-ADT)	COST
Section A: Creekside Drive to Plateau Road	60'	400	500	\$300,000

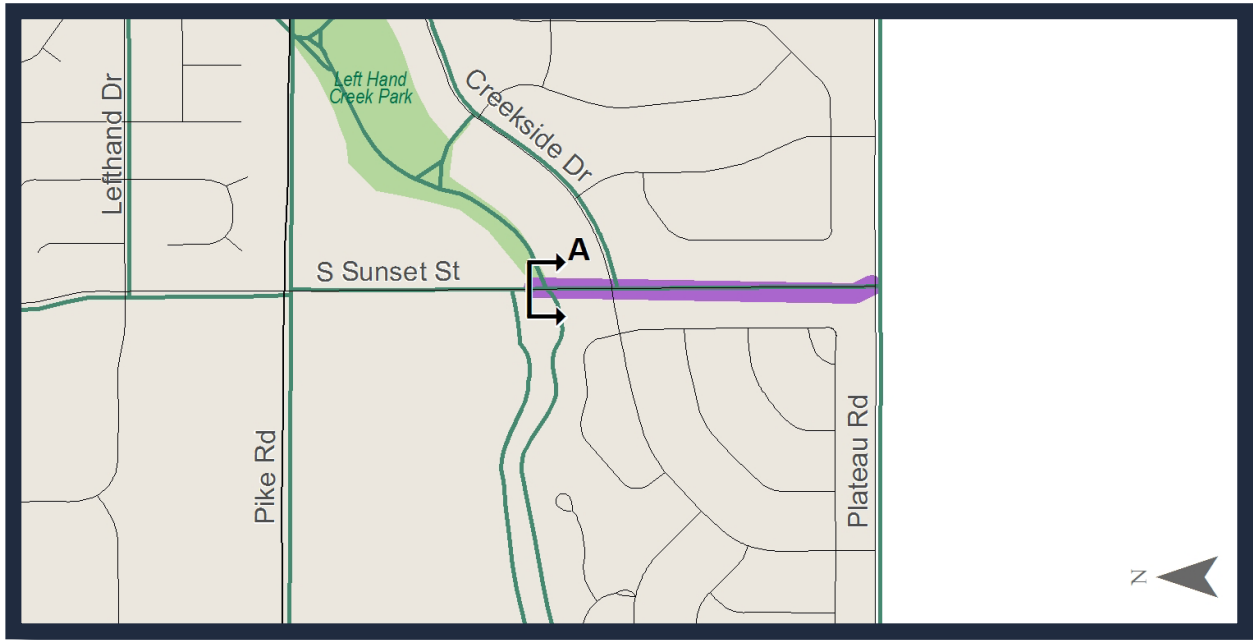


PROPOSED DESIGN

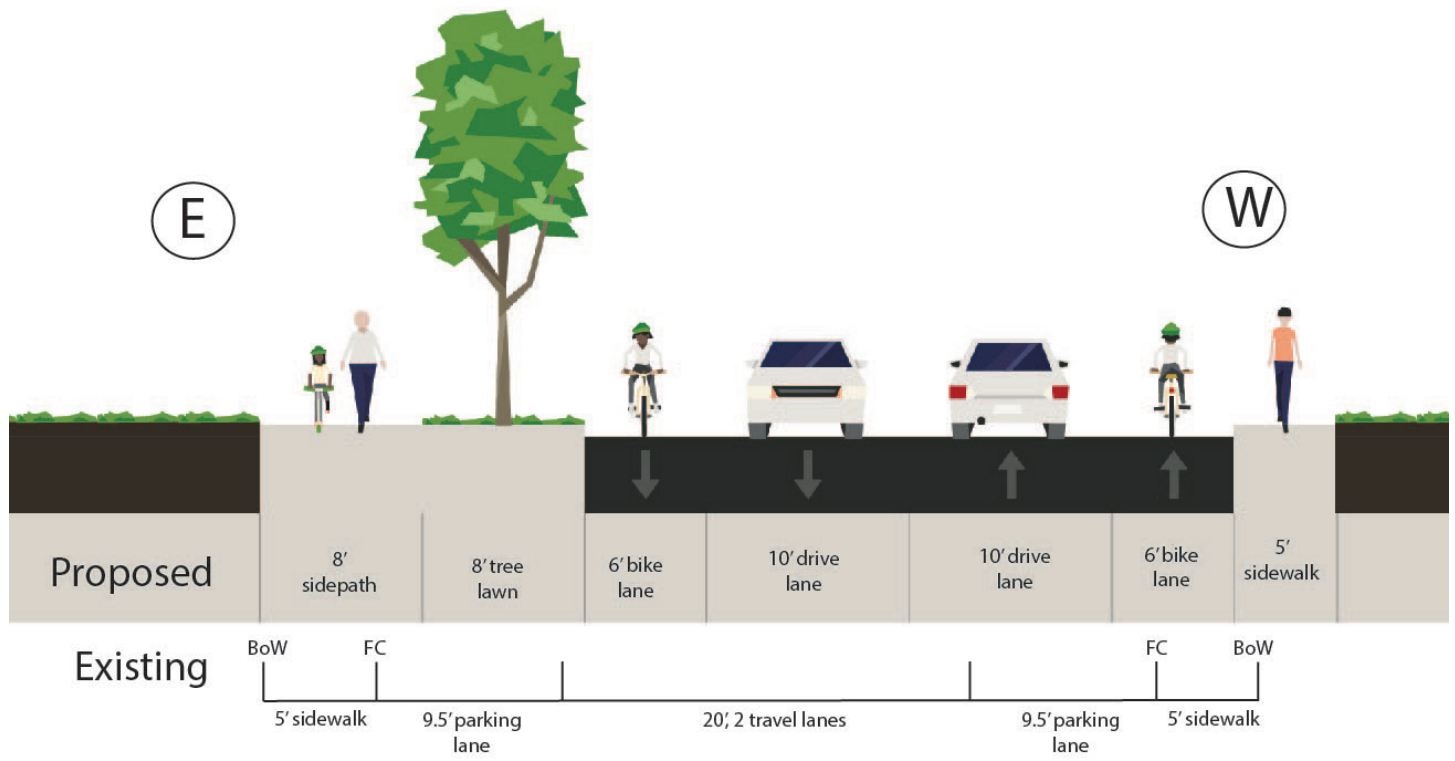
A cross-section view and plan view diagram for Sunset Street follow.

SECTION A: CREEKSIDE DRIVE TO PLATEAU ROAD

Section Map

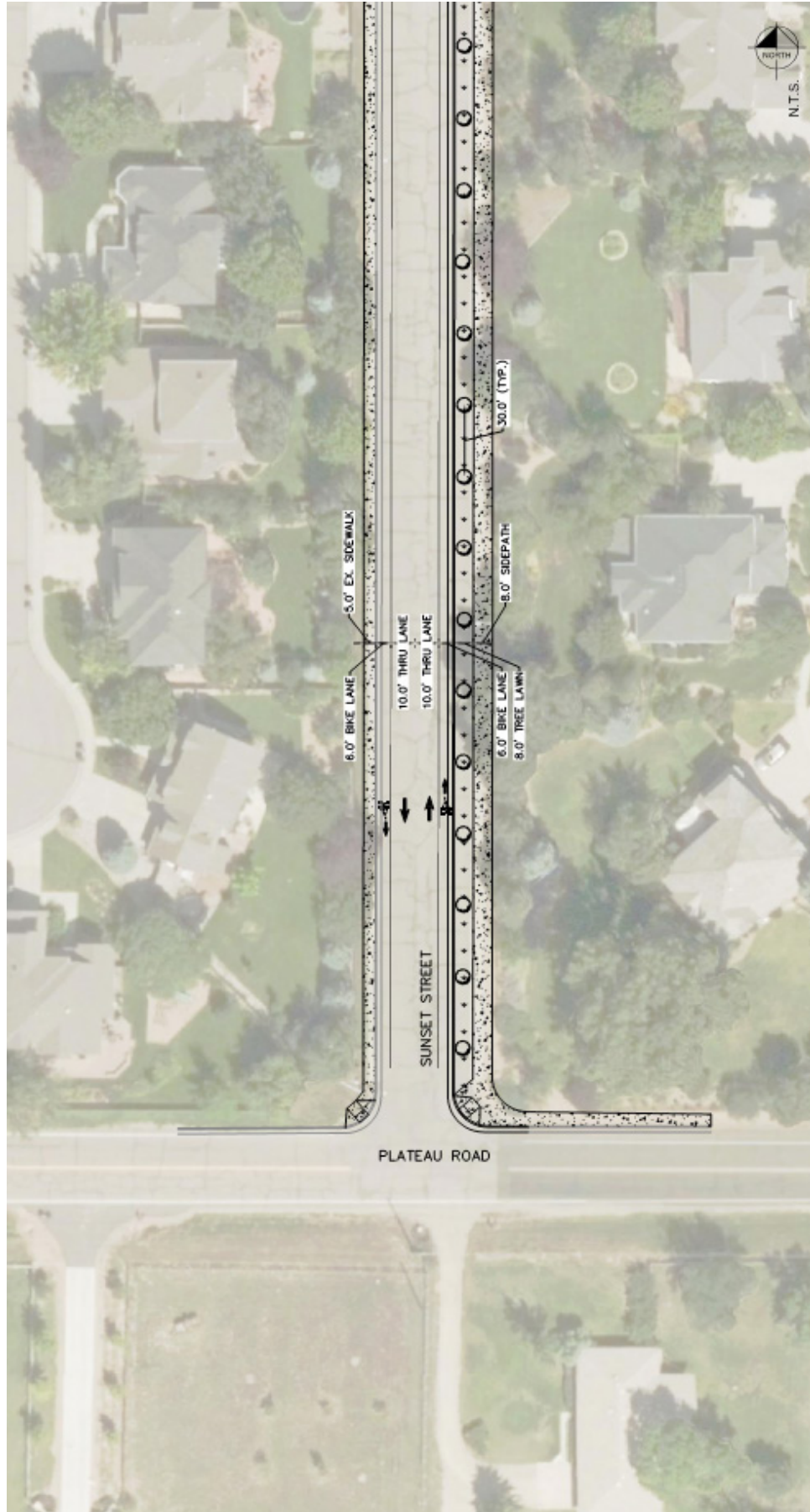


Sunset Street Section A Design: Cross-section View



Right-of-way: 60 feet

Sunset Street Section A Design: Plan View



COST ESTIMATE

Appendix E includes detailed cost estimates and assumptions. Sunset Street: Section A is anticipated to cost \$300,000. Cost estimates include contingency (20 percent), contractor overhead and profit (8 percent) and mobilization (5 percent). The primary costs in Section A are related to relocating curb and gutter on the east side of the street and constructing a sidepath with landscape buffer with tree lawn.

LEVEL OF TRAFFIC STRESS (LTS)

For People Walking

The existing LTS for people walking on Section A is LTS 3. With the proposed design, the LTS on the east side of the street improves to LTS 1, representing a highly friendly environment for people walking.

For People Biking On-street

The existing LTS for people biking on-street in Section A is LTS 2. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

For People Biking Off-street

No off-street bikeway currently exists on Section A. With the proposed design, the LTS will improve to LTS 1, representing a highly friendly environment for people biking.

WHAT DO LTS SCORES MEAN?	
LTS 1	Highly friendly for nearly all people walking or biking
LTS 2	Generally comfortable for most people walking or biking
LTS 3	May only be comfortable for confident, adult people walking or biking
LTS 4	Generally uncomfortable, even for confident, adult people walking or biking

TRADEOFFS

The proposed corridor design for Sunset Street: Section A adds a sidepath and landscape buffer with tree lawn to the east side of Sunset Street. Although this is primarily accommodated by relocating the curb and gutter on the east side of the street, the proposed sidepath will extend beyond the existing back-of-walk, likely impacting improvements in the right-of-way such as landscaping as well as some public utilities such as street lights. However, homes on this corridor face internal, local streets so the range of improvements in the right-of-way has less of an impact than on other EMUCs.

2ND AVENUE: GAY STREET TO COLLYER STREET

2nd Avenue from Gay Street to Collyer Street is identified as an east-west Enhanced Multi-use Corridor to connect the proposed EMUCs on Gay Street, Emery Street and 3rd Avenue. Currently, 2nd Avenue is informally the south edge of Downtown Longmont. However, in the future, Downtown Longmont is envisioned to extend south of 2nd Avenue. Much of the vision for this area is summarized in the *(1st & Main Station Transit Revitalization Plan.)* Given the significant amount of land use and infrastructure planning necessary in this area, proposed designs for 2nd Avenue were not developed as a part of the Enhanced Multi-use Corridor Plan. The project team reviewed options in addition to 2nd Avenue and ultimately decided to retain the proposed EMUC on 2nd Avenue. RTD's infrastructure master planning efforts for the 1st & Main area will address 2nd Avenue and should be complete later in 2018.

Prioritization

Enhanced Multi-use Corridor sections were prioritized based on a variety of criteria to guide staff in their implementation. These criteria were selected to assess both the benefit of individual Enhanced Multi-use Corridor segments and the difficulty of their implementation.

BENEFIT CRITERIA

- **Connectivity:** This measures the access to destinations that the section provides. Destinations were defined through the key destinations identified in *Envision Longmont* including schools, parks, recreation centers, grocery stores, park and rides and community facilities. EMUCs aim to provide a comfortable transportation option, thus addressing the importance of connectivity to key destinations.
- **Equity:** This input was measured by using American Community Survey block group data for the percent of households below the poverty level. This data was broken up into three categories based on natural breaks in the data. The score given to each section was weighted and averaged based on the percent of the corridor that is within each block group.
- **Trail access:** This input is important as the EMUCs are intended to complete the network by filling in gaps where there are no trails or where trails do not provide convenient and direct access to destination. It was measured based on the number of trails to which a EMUC section connects.
- **Comfort for walking and biking:** This input measures the comfort provided by each EMUC section to people walking, people biking on-street and people biking off-street. Sections that provide comfortable environments for all users score highest.
- **Public support:** Support from the public was measured by the cumulative number of votes each corridor received when asked what two corridors bring the most value to the community. Votes were summed from the public meeting in November 2017 and the subsequent online survey. Public support is important to obtain buyoff from the community on what facilities are most important to them.

IMPLEMENTATION CRITERIA

- **Ability to phase cross-section:** The City may wish to phase certain cross-section elements over time to reduce the cost of projects or to package more expensive project elements with other ongoing projects, such as street maintenance. This criteria establishes whether significant cross-section elements can be implemented without moving curb and gutter, which is expensive relative to other items.
- **Worthwhile as a stand-alone segment:** The City may wish to phase entire corridors by building one section, or limited sections, at a time. This criteria establishes whether an individual section is worthwhile on its own, or whether it's function is greatest only as a part of an entire corridor.
- **Ease of implementation:** This criteria establishes the difficulty in process (design, public outreach, etc.) in building EMUC sections. It accounts for widening of sidewalks beyond their existing back-of-walk, effects to on-street parking, travel lane reductions and the overall scale of construction necessary.
- **Cost:** The total project's cost.
- **Cost per mile:** The total project's cost, divided by its length.

Table 1 shows scores each of the benefit and implementation criteria applied to the corridor sections.

Table 1: Corridor Prioritization

Section	Connectivity	Equity	Public support	Comfort for walking and biking	Trail access	Sum	Ability to Phase Cross-section?	Worwhile as a Stand-alone Segment?	Ease of Implementation	Cost	Cost/Mi	Prioritization
3rd Avenue												
Section A: Collyer to Martin	2	2	1	2	1	8	No	Yes	Moderate	\$ 500,000	\$2,000,000	
21st Avenue												
Section A: Hover Street to Hackberry Circle	2	2	2	3	0	9	Yes	Maybe	Moderate	\$ 600,000	\$1,200,000	
Section B: Hackberry Circle to Main Street	3	3	2	3	1	12	Yes	Yes	Moderate	\$ 1,600,000	\$1,600,000	High priority
Section C: Main Street to west of RR	2	3	2	3	0	10	Yes	Maybe	Moderate	\$ 300,000	\$600,000	
Section D/E: West of RR to Mt. Sneffels Street, Mt. Sneffels Street to Sunlight Street	1	2	2	2	1	8	Yes	No	Easy	\$ 100,000	\$670,000	
Section F: Sunlight Street to Alpine Street	2	2	2	3	2	11	Yes	No	Easy	\$ 200,000	\$1,000,000	
Dry Creek Drive												
Section A: S Fordham Street to bike path under SH 119	0	1	1	2	1	5	Yes	Yes	Easy	\$ 70,000	\$240,000	
Energy Street												
Section A: Mountain View Avenue to 11 th Avenue	2	3	2	3	1	11	No	No	Moderate	\$ 200,000	\$800,000	
Section B: 11 th Avenue to 10 th Avenue	3	2	2	3	1	11	Yes	No	Moderate	\$ 60,000	\$400,000	
Section C: 10 th Avenue to 9 th Avenue	3	2	2	3	1	11	Yes	No	Moderate	\$ 60,000	\$400,000	
Section D: 9 th Avenue to 1 st Avenue	3	3	2	3	1	12	Yes	Yes	Easy	\$ 2,600,000	\$2,740,000	
Section E: 1 st Avenue to Boston Avenue	1	2	2	3	1	9	No	No	Difficult	NA	NA	
Fordham Street												
Section A: Mountain View Avenue to railroad	1	3	2	3	0	9	No	No	Moderate	\$ 500,000	\$630,000	
Section B: Nelson Road to Dry Creek Drive (Option 1)	1	2	2	3	1	9	Yes	Yes	Moderate	\$ 600,000	\$600,000	
Gay Street												
Section A: Highway 66 to 17 th Avenue	2	3	3	3	0	11	No	No	Difficult	\$ 3,600,000	\$3,600,000	
Section B: 17 th Avenue to 9 th Avenue	1	3	3	2	0	9	Yes	No	Difficult	\$ 2,800,000	\$2,800,000	
Section C: 9 th Avenue to 2 nd Avenue	2	2	3	1	0	8	Yes	No	Difficult	\$ 3,600,000	\$4,800,000	
Section D: 2 nd Avenue to Price Avenue	0	2	3	3	0	8	No	No	Difficult	\$ 1,200,000	\$4,800,000	
Mountain View Avenue												
Section A: Airport Road to Hover Street	2	3	3	3	1	12	Yes	Yes	Difficult	\$ 600,000	\$460,000	
Section B: Hover Street to Francis Street	3	3	3	3	0	12	Yes	Maybe	Moderate	\$ 600,000	\$800,000	High priority
Section C: Francis Street to Brass Street	2	0	3	3	0	8	Yes	No	Moderate	\$ 300,000	\$860,000	High priority
Section D: Brass Street to Collyer Street	1	3	3	3	0	10	No	No	Difficult	\$ 700,000	\$1,080,000	
Section E: Collyer Street to Alpine Street	3	3	3	3	1	13	No	Yes	Difficult	\$ 600,000	\$800,000	
Section F: Alpine Street to Deerwood Drive (Option 1)	3	2	3	1	1	10	Yes	Yes	Easy	\$ 70,000	\$70,000	High priority
Price Road												
Section A: Gay Street to Boston Avenue	0	3	1	1	1	6	No	No	Moderate	\$ 80,000	\$1,600,000	
Section B: Boston Avenue to cul de sac	0	3	1	3	1	8	No	No	Moderate	\$ 300,000	\$2,000,000	
Section C: Forbes Court to Nelson Road	1	3	1	2	1	8	No	No	Moderate	\$ 400,000	\$1,600,000	
Sunset Street												
Section A: Creekside Drive to Plateau Road	0	1	2	3	1	7	Yes	Yes	Moderate	\$ 300,000	\$1,000,000	

High priority projects are generally those that have a high overall benefit score (sum), have an ease of implementation that is easy-to-moderate, and have a relatively low cost. The benefit scores for all projects are provided as a resource to guide City staff in corridor implementation beyond the high priority projects. While priority should be given to projects with a high benefit score, realistic implementation must also consider a project's ease-of-implementation and cost. Additionally, it is appropriate for relatively low benefit projects to be implemented before other higher benefit projects when they can be completed inexpensively or through ongoing maintenance activities.

Based on the prioritization of Enhanced Multi-use Corridors, the following sections are notable as likely high priorities for the City:

- **21st Avenue Section B: Hackberry Circle to Main Street.** This section connects to the Oligarchy Greenway Trail and is proximate to several parks (Garden Acres Park, Carr Park and Dog Off Leash Area #1) and two schools (Sanborn Elementary and Northridge Elementary). It also provides direct connectivity to the US 287/Main Street and North Main commercial district. The proposed design can be phased-in to first implement the buffered bike lanes, then sidewalk widening and multi-use trail construction can be implemented later. Although the proposed design requires repurposing travel lanes, the existing and forecasted traffic volumes on this section are sufficiently low that the resulting peak hour traffic operations are likely to be acceptable.
- **Mountain View Avenue Sections B and C: Hover Street to Brass Street.** These sections improve access to jobs at major employment centers, including Longmont United Hospital. It also can improve access to two schools (Mountain View Elementary School and Longs Peak Middle School). They also connect to Gay Street, which is identified as a EMUC for later implementation. The proposed design can be phased-in to first implement the wider bike lanes in Section B and buffered bike lanes in Section C. Sidewalk widening can be implemented later.
- **Mountain View Avenue Section F: Alpine Street to Deerwood Drive.** This section connects major schools (Timberline PK-8 and Skyline High School) and Clark Centennial Park to Stephen Day Park and the Spring Gulch Trail. The proposed design can be phased-in to first implement protected bike lanes; the City can later decide whether moving the curb and gutter to accommodate wider sidewalks or sidepaths. Given the presence of school children in this area and the potential this section provides to connect residences to the trail system, it is an excellent opportunity to pilot the City's first protected bike lanes.

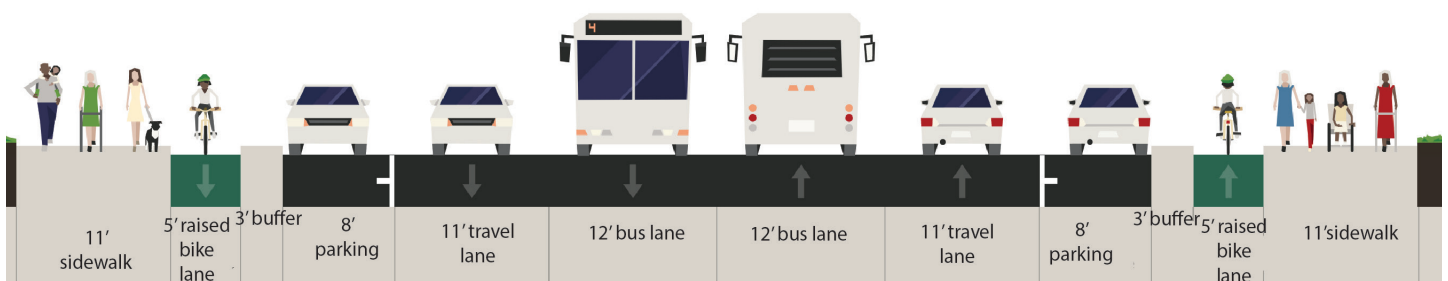
COFFMAN STREET

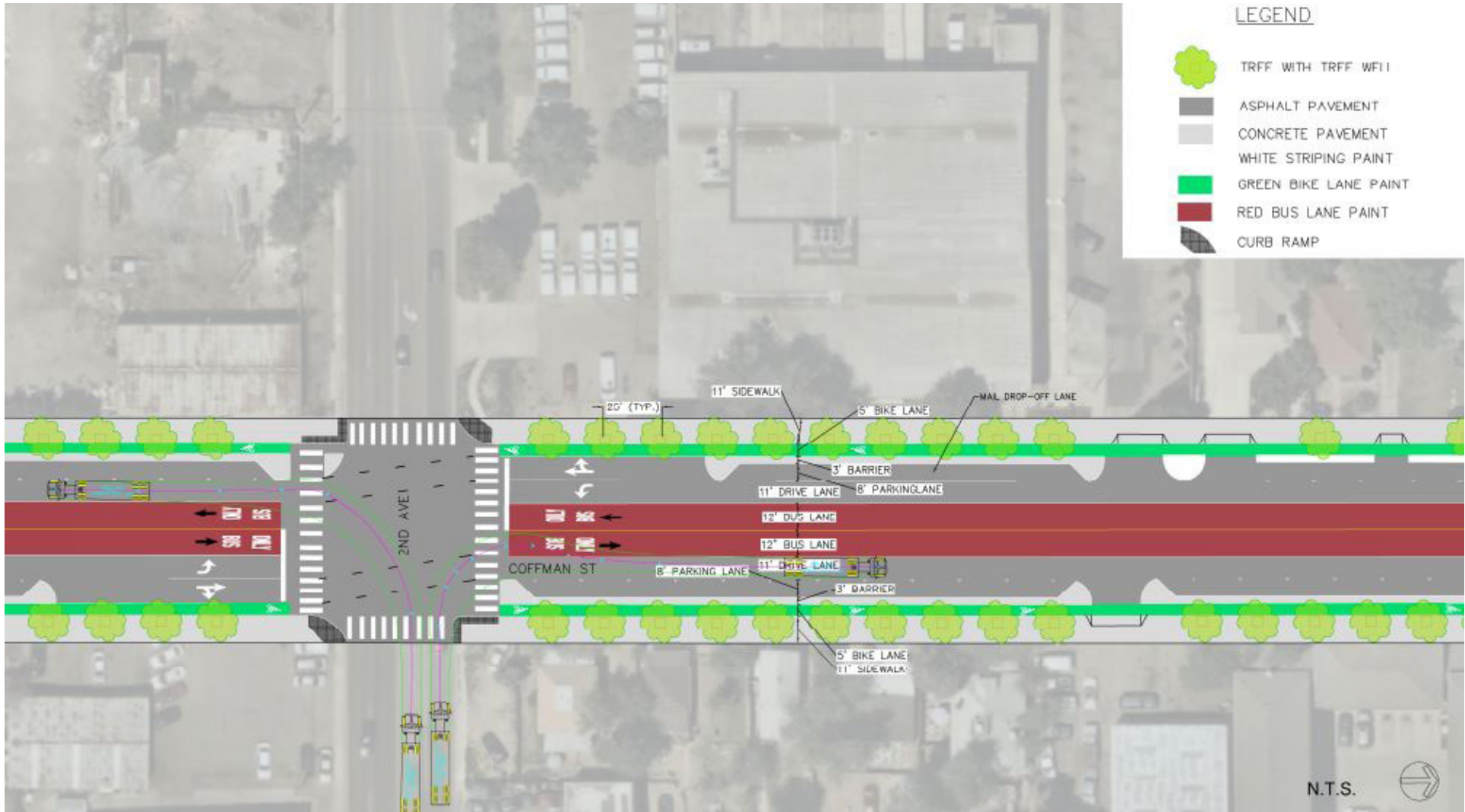
A special analysis was completed for Coffman Street from 2nd Avenue to 9th Avenue. In addition to being a proposed EMUC, Coffman Street is the City's preferred alignment for State Highway 119 Bus Rapid Transit (BRT) through Downtown Longmont, as well as for other local bus service once the State Highway 119 BRT and 1st & Main Station Transit Revitalization Plan projects are complete.

Proposed cross-sections for Coffman Street were developed to serve the multi-modal vision for this corridor and include wide sidewalks, tree lawns, protected bike lanes, on-street parking, one travel lane in each direction and center-running bus lanes. The wide sidewalks with tree lawns and protected bike lanes will provide for a highly-comfortable environment for people walking and biking; the wide sidewalks and tree lawns will also contribute to a vibrant downtown with pedestrian-oriented land uses. Protected bike lanes ensure minimal conflicts with bus traffic on this corridor. Center-running bus lanes are the fastest, most efficient facility for buses as they provide dedicated lanes and eliminate friction and delay caused by on-street parking (parking maneuvers, people entering/exiting cars, etc.). However, center-running bus lanes come with some tradeoff to turning traffic at intersections. Lastly, these cross-sections assume a nearly full rebuild of the corridor to reset curb locations to maximize use of the City's right-of-way. Although this reconstruction comes at a high cost, it is necessary to achieve the truly multi-modal vision for this street. Further study of these tradeoffs are necessary as these concepts are further refined by the City and RTD as the State Highway 119 BRT project evolves.

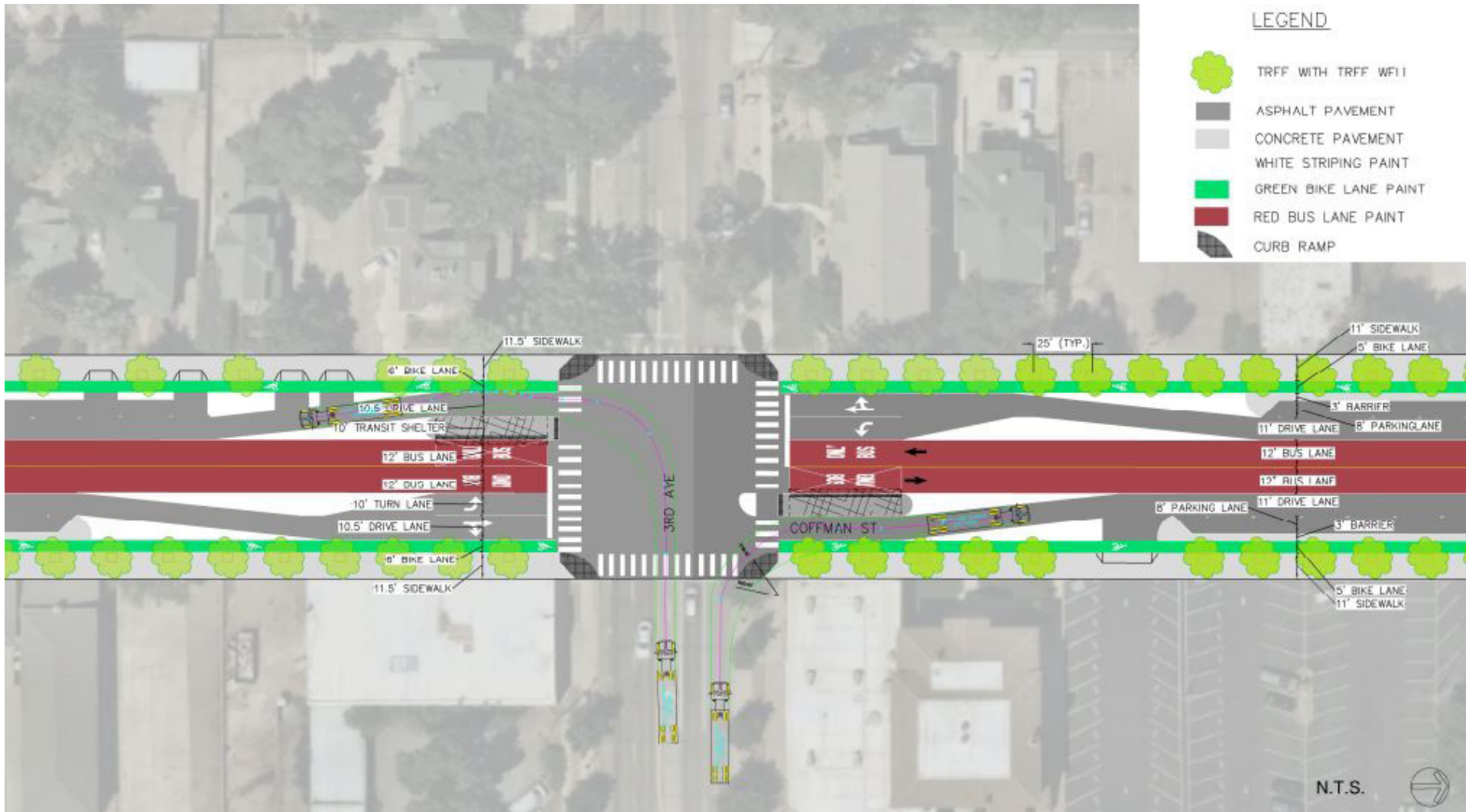
Appendix H includes a detailed cost estimate for Coffman Street. The total cost of improvements to Coffman Street from 2nd Avenue to 9th Avenue is \$6,280,000.

A typical cross-section for the proposed recommendations on Coffman Street is shown below:

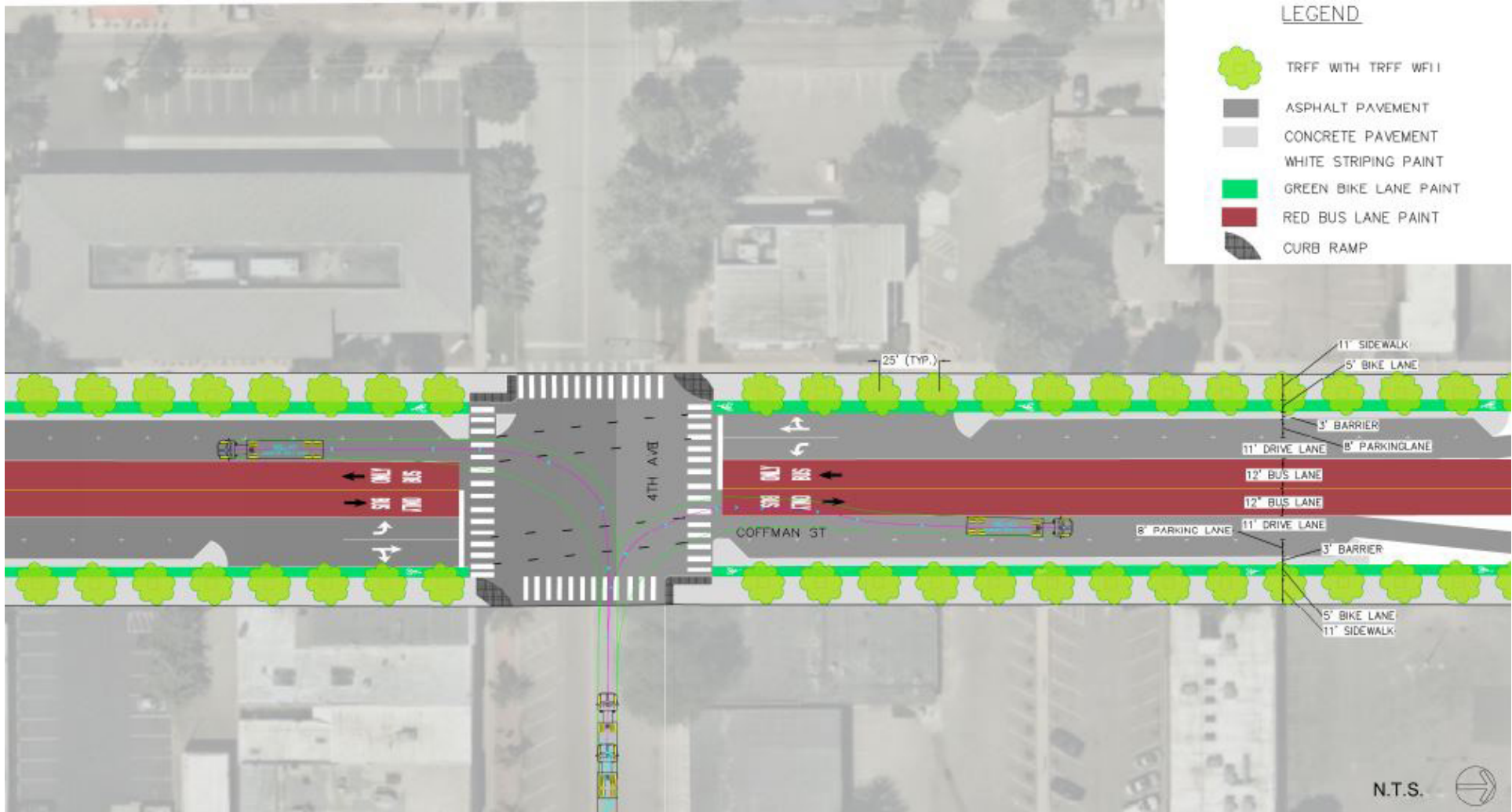




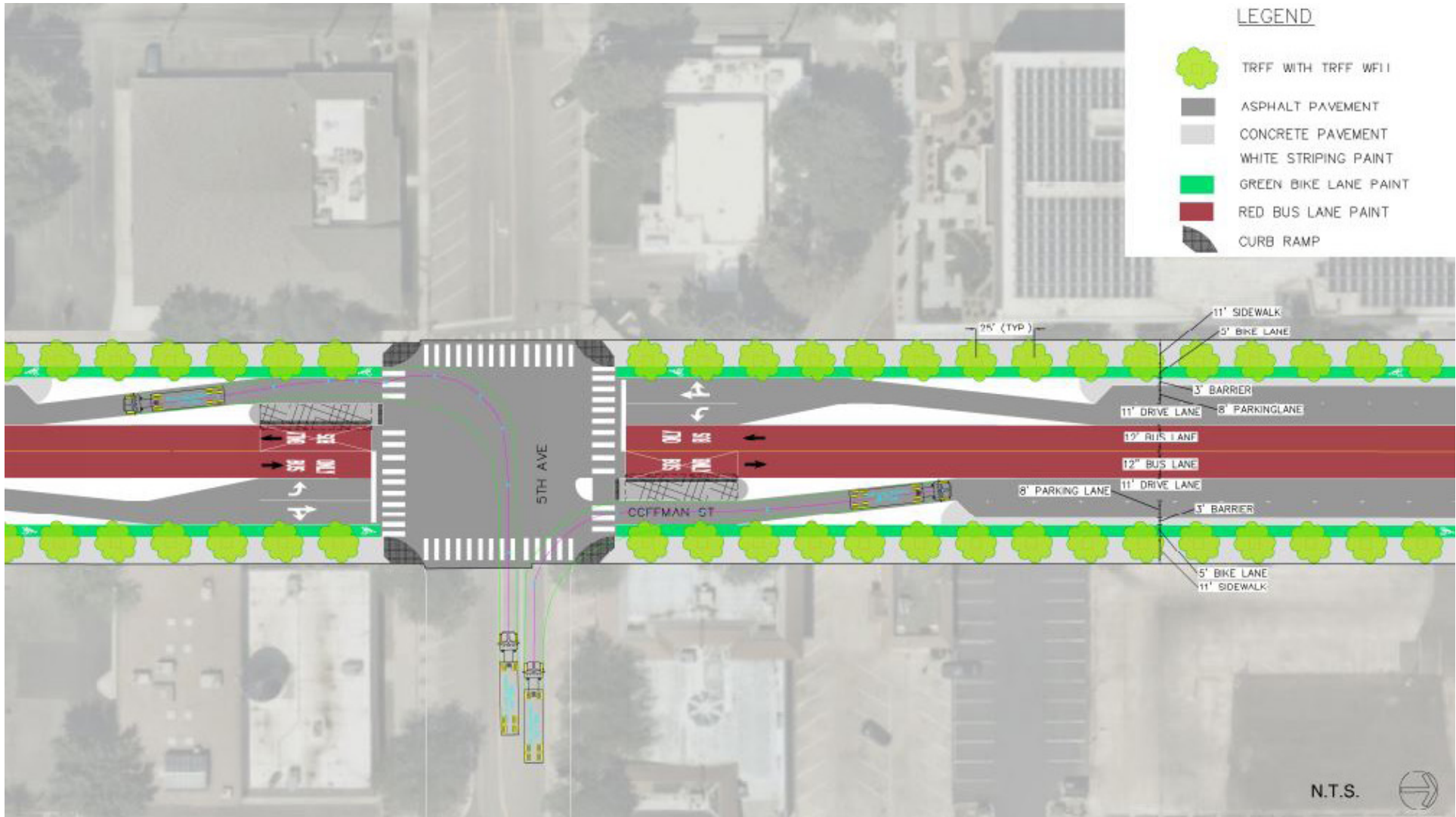
**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN - 2ND AVENUE SEGMENT**



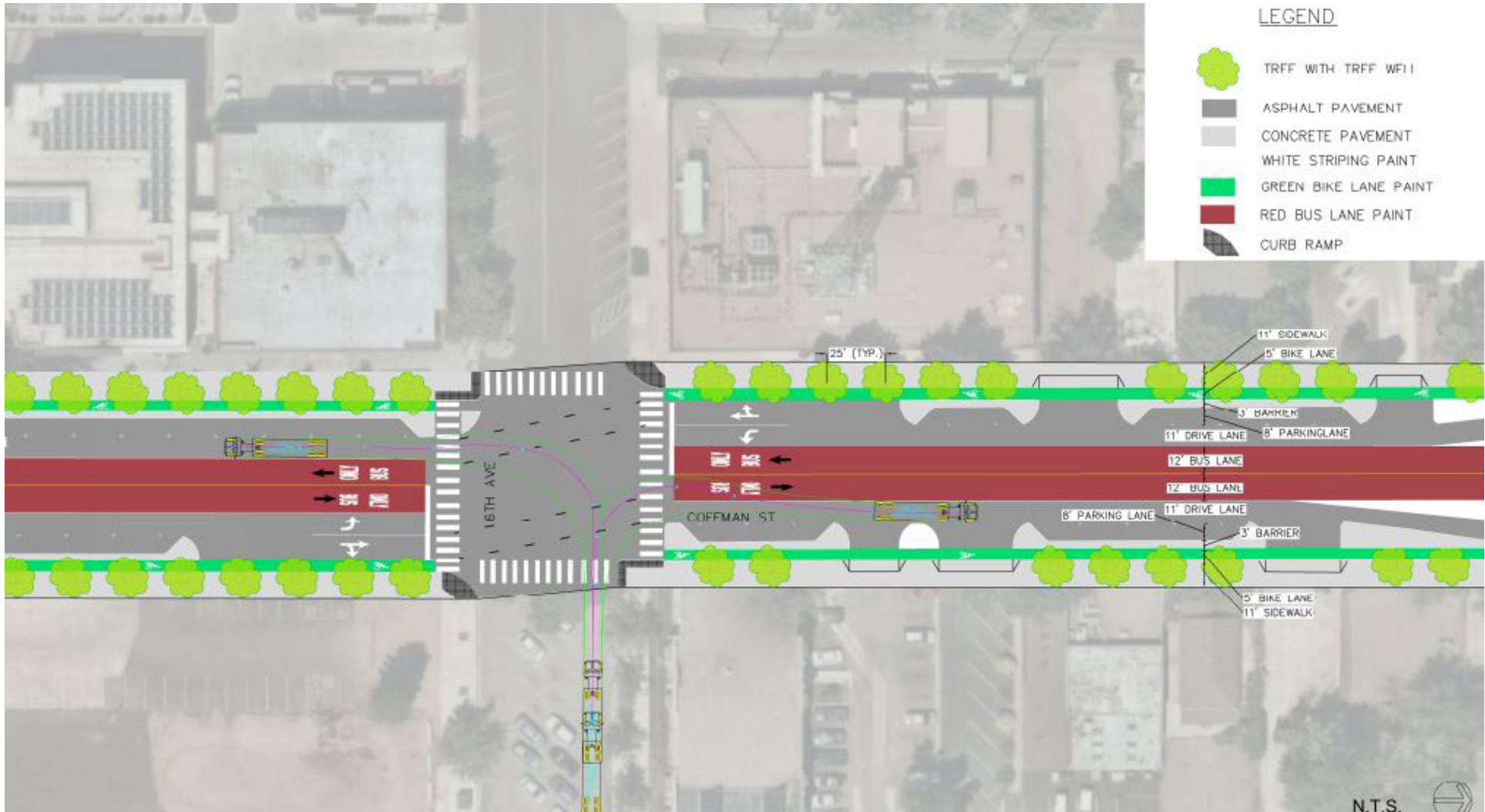
**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN - 3RD AVENUE SEGMENT**



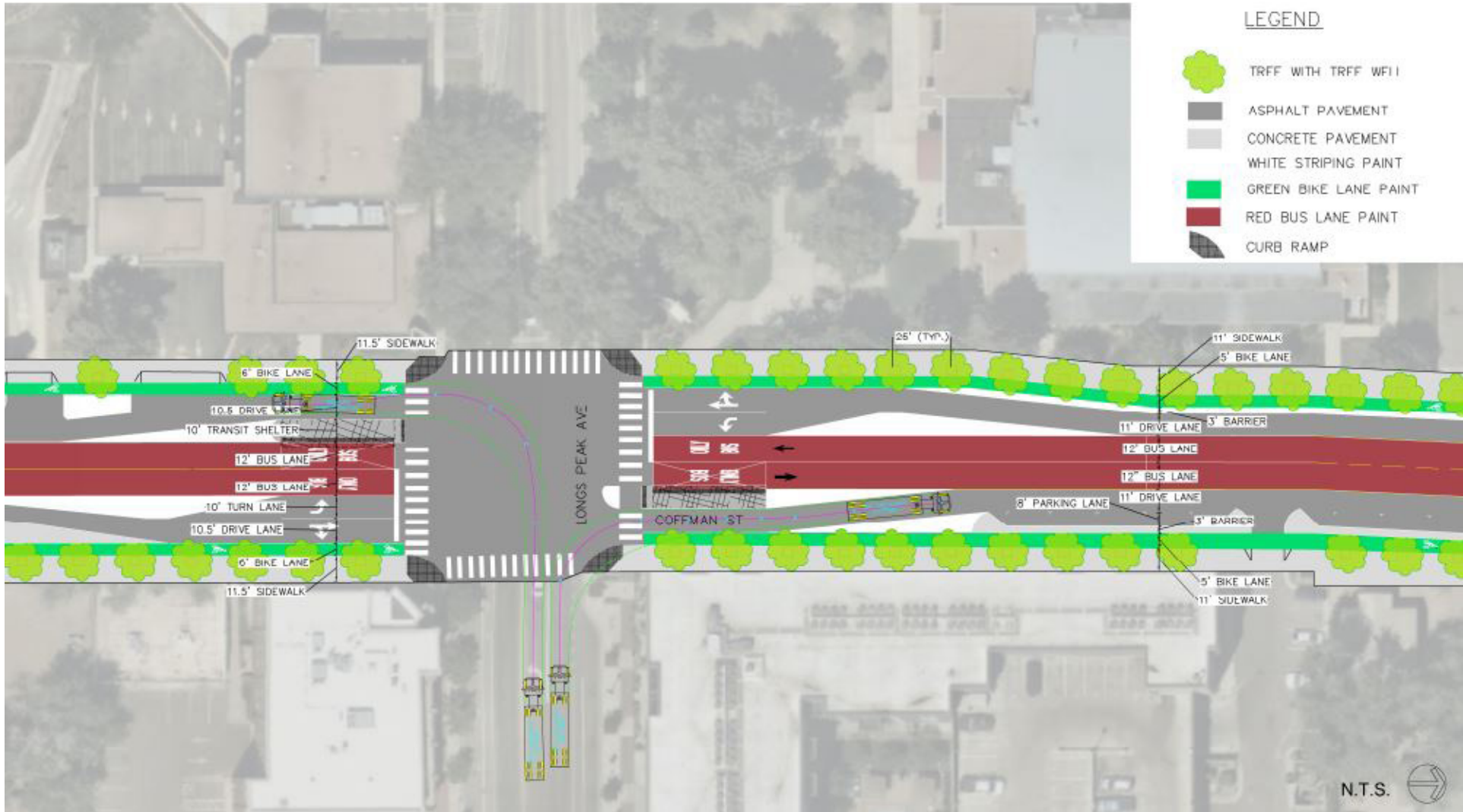
**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN - 4TH AVENUE SEGMENT**



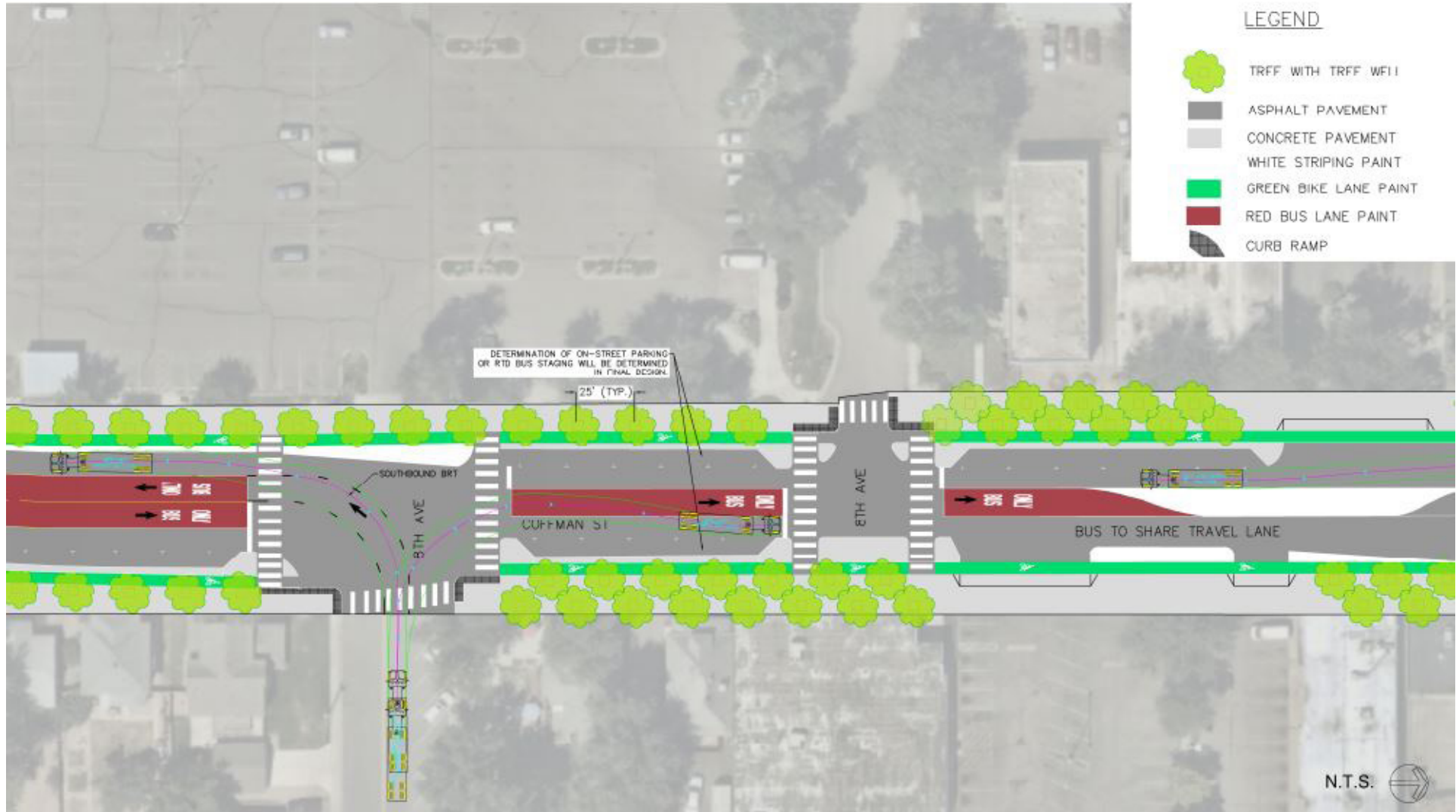
**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN - 5TH AVENUE SEGMENT**



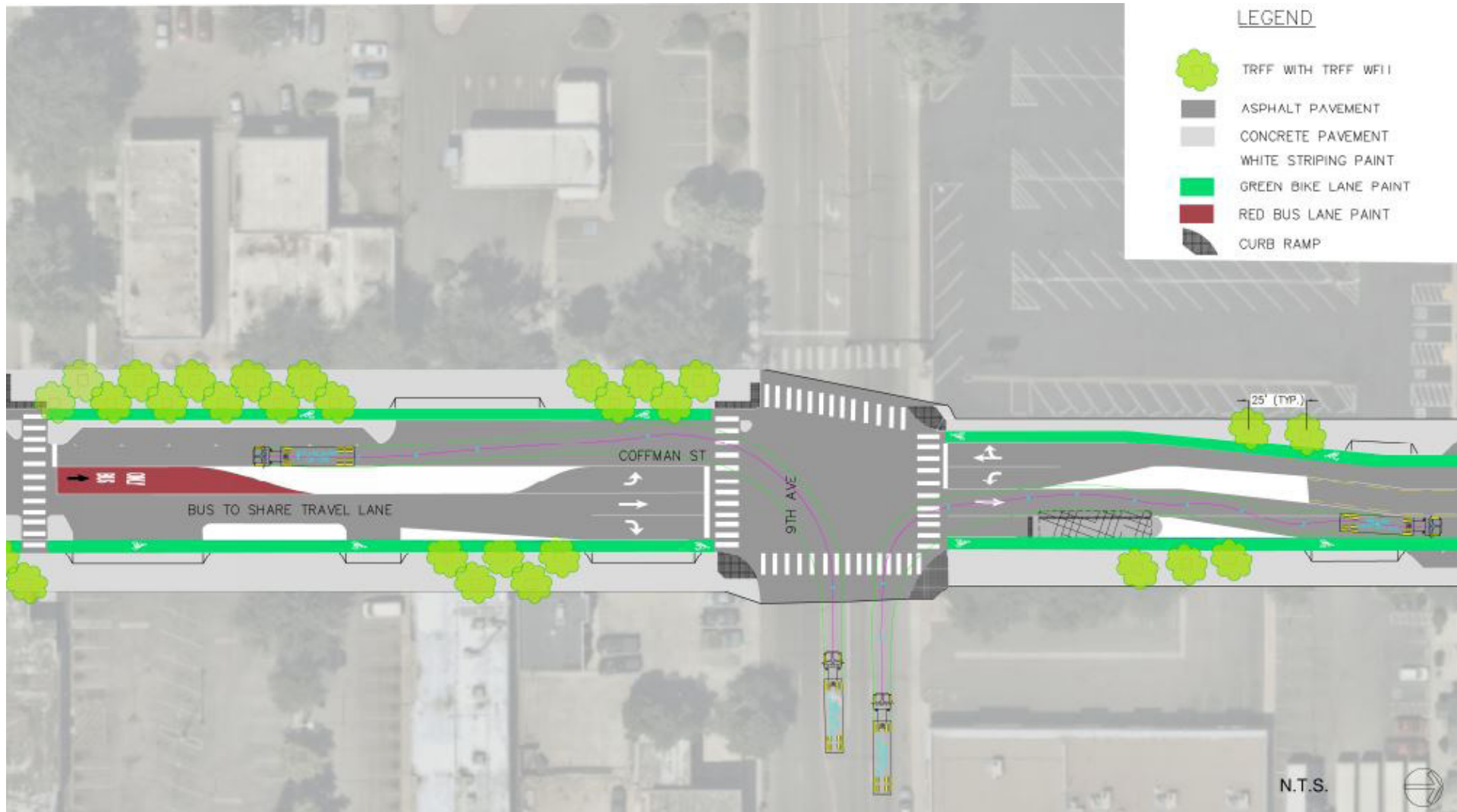
**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN - 6TH AVENUE SEGMENT**



**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN - LONGS PEAK AVENUE SEGMENT**



**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN - 8TH AVENUE SEGMENT**



**COFFMAN STREET - BUSWAY AND PROTECTED BIKE LANES
CONCEPT PLAN- 9TH AVENUE SEGMENT**

Maintenance Considerations

As the City implements EMUCs, they will also need to develop maintenance strategies either one corridor at a time or, in some cases, citywide to address the maintenance needs of these corridors. Maintenance generally includes routine maintenance, or maintenance needed regularly throughout a calendar year, and rehabilitation maintenance, maintenance that involves reconstructing improvements as they reach the end of their useful life. As with any new infrastructure, increased costs for rehabilitation maintenance can be expected.

Many of the proposed recommendations have routine maintenance implications, including needs for street sweeping, snow removal and maintenance of landscaping. These needs will result from the widening of sidewalks, the addition or widening of tree lawns or landscaped buffers, and the addition of bike lanes or protected bike lanes.

Sidewalk and Tree Lawn or Landscaped Buffer Maintenance

Longmont property owners are responsible for both sidewalk and tree lawn/landscaped buffer maintenance for anything up to the defined standard by street classification (8-foot for sidewalks on arterials and 5-foot for sidewalks on collectors and residential streets). This includes snow clearance of sidewalks, irrigation and mowing of tree lawns/landscaped buffers and replanting of landscaping when necessary. The City is responsible for maintaining sidewalks and tree lawns/landscaped buffers that are wider than the widths defined by the City's standards. As EMUCs are implemented, the City should consider taking on the maintenance of the sidewalk, tree lawn or landscaped buffer once the EMUC is constructed. This will ensure that snow is cleared from sidewalks or sidepaths and that the tree lawn or landscaped buffer maintains the high aesthetic value desired on these corridors. One issue frequently noted was tree lawns or landscaped buffers located along the sides or backs of properties, where less care is typically taken of these facilities than otherwise desired.

Bike Lane and Protected Bike Lane Maintenance

Bike lanes and buffered bike lanes, where no vertical protection is provided, require regular street sweeping and snow clearance in winter. Additional bike lanes and buffered bike lanes will increase the demand for and cost to provide this service. Protected bike lanes, which feature vertical protection between the travel lane and the bike lane, are a particular challenge for street sweeping and snow clearance. Protected bike lanes are typically too narrow for standard street sweeping and snow clearance equipment. Cities that have implemented extensive protected bike lane systems have typically acquired special maintenance equipment. Longmont can expect that creation of a system of protected bike lanes will come with increased routine maintenance costs in the form of new equipment and a specialized maintenance program to keep these facilities swept and clear of snow; a comprehensive strategy for this should be considered as protected bike lanes are piloted as a part of EMUC implementation.

Integrating Enhanced Multi-use Corridors with Other On-street Bikeways

Envision Longmont identifies a variety future bicycle facilities including bike lanes, sidepaths, and off-street trails. EMUCs are just one part of a comprehensive, integrated system of bicycle facilities and not every bicycle facility is designated as an EMUC. As EMUCs are implemented, consideration should be given to the timing of implementation of other bicycle facilities to ensure a high level of citywide destination connectivity. In outreach, the public suggested several additional corridors for EMUCs that are already proposed for other bicycle facility types; it is possible that these bicycle facilities are a high priority relative to other bicycle facilities:

- Sunset Avenue between 3rd Avenue and Boston Avenue
- 9th Avenue from Main Street to Hover Street
- Hover Street between State Highway 119 and Left Hand Creek

The corridors proposed as EMUCs as a part of *Envision Longmont* were critically considered as a part of this planning process. The EMUC on Grand Avenue was ultimately eliminated from the network Enhanced Multiuse Corridors because of high comfort sidepaths for bicyclists and pedestrians recommended along an adjacent facility, State Highway 119. More details and information on the rerouting of EMUCs as proposed in *Envision Longmont* are discussed in **Appendix A**.

Next Steps

This plan identifies conceptual cross-section plans and important implementation considerations. Additional data collection, analysis and design needs to be completed before implementation can take place.

Design Standard Considerations

Important design considerations were extracted from this process that should be carried through as corridors enter final design. These consideration include the following:

- **Directional curb ramps:** Feedback during the public meeting identified the need to retrofit existing diagonal curb ramps to directional curb ramps. As sidewalks are added or retrofitted, directional curb ramps should be implemented according to the Public Rights-of-Way Accessibility Guidelines (PROWAG) released by the US Access Board and the Department of Justice.
- **Green pavement in bike lanes:** Many cities across North America apply green pavement in bike lanes, especially at high conflict points such as driveways and intersections. This treatment can be helpful in drawing attention to the potential presence of bicyclists but can also be expensive to maintain. In order to be most effective in drawing motorists attention and to remain cost effective, it is recommended that green pavement be applied only in known or perceived conflict areas. Saving green pavement for the top 10-20 percent of locations is a possible rule-of-thumb. NACTO and the MUTCD provide additional guidance on the use of green pavement.
- **Make buffered bike lanes protected:** During outreach for this plan, the public expressed the desire to enhanced buffered bike lanes with vertical protection in order to increase perceived safety and comfort on EMUCs. The cross-sections that show a painted buffered bike lane can be considered for vertical protection in future phases of planning and design. NACTO provides additional guidance on dimensions and design elements for protected bike lanes.
- **Parking-protected bike lanes instead of standard bike lanes next to on-street parking:** Members of the public frequently suggested “flipping” the location of bike lanes when next to parking so that bike lanes be between the curb and on-street parking, rather than between the travel lane and on-street parking. This analysis explored this possibility; however, it was rarely a practical design option given the number of driveways on streets, the available space in the right-of-way (parking protected bike lanes require additional width so bicyclists can ride entirely out of the door zone), and considerations related to trash pickup.
- **Whenever possible, the City should strive for the minimum recommended widths and design treatments based on street classification.** However, it is important to recognize that in some sections of corridor, the additional costs outweigh the benefits. Considering and weighing these costs and benefits should be a component of the final design and implementation and considered in the context of current and future land use. This should be considered in the context of the character and type of street (such as established neighborhood or areas with planned redevelopment).

Additional Study

A number of additional steps need to take place before EMUCs are implemented. These include the following elements:

- Parking utilization studies
- Traffic counts
- Intersection approach treatments
- Maintenance considerations and responsibilities
- Final designs (30%, 60%, 90% and 100% designs)