Introduction

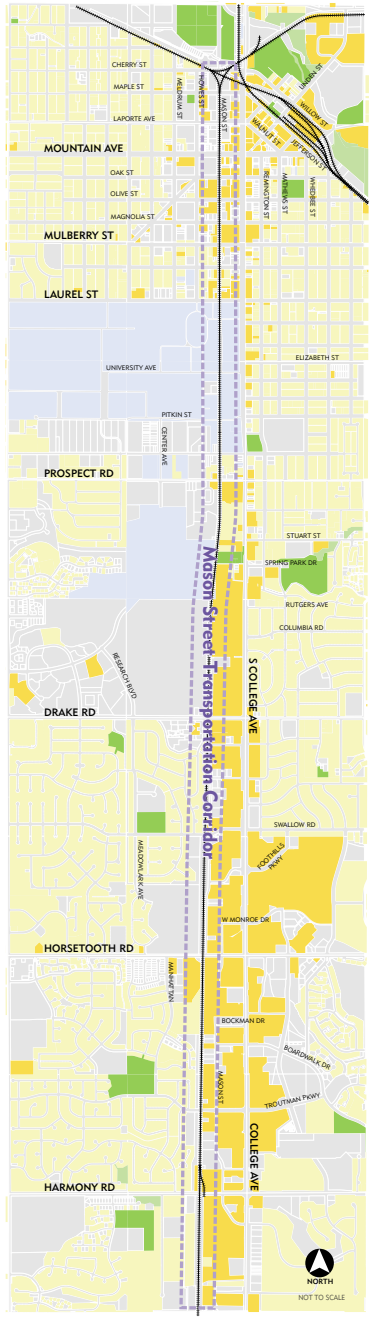
The Mason Street Transportation Corridor is a five mile north-south corridor within the City of Fort Collins, which extends from Cherry Street on the north to Harmony Road on the south. The center of the corridor is along the Burlington Northern Santa Fe (BNSF) Railway tracks, located a few hundred feet west of College Avenue (US 287).

There is currently no transportation route through Fort Collins dedicated to the north/south flow of bikes, transit, and pedestrians. Buses compete with autos on College Avenue, bicycles make circuitous trips to travel through the city, and pedestrians encounter "unfriendly" vehicle traffic and unsafe walking conditions.

This is a transportation corridor intended to enhance opportunities for pedestrians, bicyclists, and transit riders along its length, to encourage development, and to provide for economic opportunities. It will provide a direct north/south route for bicyclists and a faster passenger-trip time using transit technologies rather than having to use autos on a congested College Avenue. It also offers the possibility of future commuter rail service from Fort Collins to Denver destinations throughout the region.

The Mason Street Transportation Corridor will provide a direct north/south route for bicyclists and a faster passenger-trip time with new transit technologies.

The concept of the transportation corridor began in 1996 when citizens approached the City of Fort Collins Transportation Board, and asked the Board to identify important transportation improvements. The City's Transportation Board took the citizen request and conceived the Mason Street Transportation Corridor as one possible solution to north-south traffic congestion impacting Fort Collins and to the lack of safe, convenient routes for people choosing different modes of travel. The Board embraced that idea along with several other important capital projects. Before rec-



Building Community Choices Ballot

"There is currently no transportation corridor dedicated to the north-south flow of bicycles, buses, and pedestrians. Mason Street from Cherry Street to Harmony Road is envisioned as the city's first such transportation corridor, and would be a roadway for the exclusive use of buses, bicyclists and pedestrians. Depending upon acquisition of the necessary right-of-way, the corridor would extend for nearly six miles along the Burlington Northern Santa Fe Railroad right-of-way. Phase 1 is the engineering/design studies and acquisition of rights-of-way. Phase 2 is the construction of a bike and pedestrian way from Prospect Street to Harmony Road. Public transit would be added as funding is available."

ommending a list of transportation projects for funding through Building Community Choices, the Transportation Board conducted a widely publicized survey. A 66% majority of the survey respondents were in favor of the Mason Street Transportation Corridor project. This project and thirteen others were presented to City Council to include in the Building Community Choices capital funding ballot proposal.

In 1997, Fort Collins voters approved Building Community Choices, which included the Mason Street Transportation Corridor Master Plan and improvements.

The design and conceptual engineering studies contained in this report constitute the master plan phase of this project. Phase II will be the construction of a bike and pedestrian way from Prospect Street to Harmony Road.

Why is the corridor so important?

The Mason Street Transportation Corridor, which includes College Avenue, is extremely vital to the City of Fort Collins as a place of employment and a destination for shopping, entertainment, and services. College Avenue is also the primary north-south route in the city. As growth continues, the Mason Street Transportation Corridor will provide parallel transportation opportunities to College Avenue, which is critical to the vitality of the corridor and the city.

Why do we need improvements?

The evidence shows that there is a definite and ever-increasing need to improve the flow of people and goods through the City of Fort Collins. It also shows that the Mason Street Transportation Corridor is a very reasonable site for a major north/south transportation corridor for the following reasons:

- Growth in the city affects transportation congestion and slows travel times along the corridor.
- Important segments of the corridor are missing critical segments of sidewalks and bikeways, making in virtually impossible to travel north and south.
- Bus travel times are currently limited by traffic flow on College Avenue.

Why not just build more streets?

When one examines the overall Mason/College corridor it becomes evident that opportunities do not exist to build new streets or widen existing streets such as College Avenue. Whereas it might be physically possible to relocate the high density existing homes and businesses along the corridor, and some of these residences and businesses might be willing to relocate, the costs would be prohibitive to create a sufficiently wide corridor to add even one north and one south lane. College Avenue is a

U.S. highway (US 287). To expand College Avenue (US 287) is not even a remote possibility, according to Colorado Department of Transportation (CDOT).

Improving traffic signalization timing and street conditions are both priorities of the city. Whereas a new signal system will help the flow of traffic through town, it will not solve future congestion given Fort Collins' recent growth rate. Future growth within the city and along the corridor underscores the need for multiple choices in transportation in the dense north-south corridor in the middle of town.

How does the Mason Street Transportation Corridor fit with City Plan?

The Mason Street Transportation Corridor is a product of City Plan, which states:

> *"The physical organization of the city will be supported by a framework of transportation alternatives that maximizes access and mobility throughout the city, while reducing dependence upon the private automobile...*
>
> *...Transportation Corridors will be developed to provide efficient mobility and cost-effective transport of people and goods between the various districts of the City."*

Potential corridors are: Harmony, Drake, Prospect, Elizabeth, Mulberry, Vine, Taft Hill, Shields, College/Mason, Lemay, and Timberline.

> *"Enhanced Travel Corridors will be established strategically within the city as specialized Transportation Corridors and contain amenities and designs which specifically and solely promote walking, the use of mass transit, and bicycling. Enhanced Travel Corridors will provide high frequency/high efficiency travel opportunities linking major activity centers and districts in the city."*

Communications and Public Involvement

The Mason Street Transportation Corridor communications and public involvement process was designed to ensure that the city is listening to its residents and businesses, and encouraging everyone to participate in this exciting venture.

The communication and public involvement objectives were to develop an effective citizen public participation process that:

- encouraged a significant population of Fort Collins to become actively involved,
- provoked dialogue and discussion toward the development of a consensus-driven plan,
- solicited input from the community to help define the corridor vision
- built community agreement and support for the corridor plan through hands-on involvement of vested interest stakeholders, and
- reached a broad, community-wide audience.

The activities and events of the public involvement process were ongoing throughout the course of the project, with certain actions timed to coincide with key project benchmarks. It was established early on that the Mason Street Transportation Corridor project addresses a unique opportunity for the Fort Collins community—one that could not be overlooked if Fort Collins is to achieve its transportation and community design goals. Throughout the project, those most directly impacted by the corridor plan were repeatedly invited to have a direct role in developing solutions and alternatives during the planning process.

The Mason Street Transportation Corridor outreach efforts were to address:

1. Citizens affected most immediately by the corridor—those who live, work, own property, and/or conduct business within ¼-mile (easy walking distance) of the spine of the corridor.
2. "Potentially Affected Interests" (PAIs) whose professed focus of interest could be addressed by the corridor.

Lead Team

A citizens Lead Team was selected to ensure voices from the broad range of interests involved along the Mason Corridor and throughout the city. The members represent neighborhoods, homeowners and renters, large and small business interests, land owners, and Colorado State University.

All Lead Team members had active professional or personal interests in transportation and related issues—not limited to but including bicycles, trolleys and trains, air quality, and accessibility. The lead team met monthly for more than 18 months.

Mission Statement

> *"The Mason Street Lead Team (MSLT) will provide input and ideas to City staff and consultants working to create a master plan for the Mason Street Transportation Corridor project. The MSLT will work with the community to ensure that their perspectives are reflected in the master plan presented to City Council for adoption. The MSLT will review and comment on all stages of the project and advise City staff and consultants in an impartial and open-minded manner of the best options in resolving the problems and opportunities addressed by the Mason Street Transportation Corridor project."*

Citizen Volunteers (Lead Team Members):

Steve Ackerman	Jerry Gavaldon	Debbie Reider
Greg Belcher	Dan Gould	Leon Sanders
Eric Berglund	Dave Hudson	Raymond Sons
John Clarke	Tom Kehler	Dan Stiles
Doug DeMercurio	Chuck Matta	Brent Thordarson
Jon Fairchild	Sarah Mayse	Phil Walker
Bob Flynn	Stu McMillen	Ed Zdenek
John Fooks		

3. All citizens of the City of Fort Collins who might be attracted to use the corridor for many reasons.

Mason Street Lead Team

An advisory committee, named the Mason Street Lead Team, was formed to ensure ongoing, well-informed representation from all geographic areas along the corridor. Both businesses and residents were included, as well as special interest groups along the corridor. Each team member was reputed to be a local "community leader" among the segments he or she represented, able to not only represent the point of view of their informal constituency to the study team, but also to represent/advocate the project back to their "home" neighborhoods/constituents. Lead team members typically represented multiple interests. This diverse and articulate team met monthly for the duration of the project, diligently and earnestly reviewing progress and contributing ideas and recommendations toward their vision of the ultimate success of the project.

Technical Advisory Committee

A Technical Advisory Committee was assembled from City staff and consultants to reflect a broad range of technical expertise. The Technical Advisory Committee dedicated an afternoon meeting to generating an extensive list of other PAIs, both individuals and identifiable groups, who would reasonably be interested in the project or aspects of the project. With that open-ended list, the consultant contacted these PAIs and developed a focused mailing list. These PAIs frequently requested multiple copies of project mailings for direct distribution to their own constituents.

Mailing Lists

An extensive mailing list was developed within a ¼-mile boundary east and west of the BNSF Railroad, from Cherry Street on the north and Harmony Road on the south. The list contained the names and/or addresses of all property owners, residents, businesses, and other occupants of all lots within the described boundaries. Taken originally from Larimer County property records, it was supple-

mented and cross-checked with City of Fort Collins utility records. Recent updating and final checking on key segments of the corridor was done by personal, on-site verification by a consultant team member. The final list of 3,600 is considered to be an accurate resource for contacting most citizens who currently are aware of and interested in the project.

Communication Activities and Public Involvement

Specific public involvement and communication activities fell into three primary categories:

- Advisory and Input Groups,
- Special Events and Activities,
- Public Information and Communication.

In general, the **Advisory and Input Groups** received in-depth information and gave detailed input to the project through meetings and discussions with a highly focused agenda.

An open house was held at the Foothills Fashion Mall for citizens to ask questions and view the 25 foot printed version of the corridor.

Likewise, the **Special Events and Activities** held for broader audiences, such as open houses and design workshops, always had background ("catchup") information to orient new attendees to the project, and then gave opportunities at a variety of levels for both general and site-specific input. It became clear that certain activities and venues attracted greater participation. Highest participation was attracted (1) to two Saturday open houses held at Foothills Fashion Mall (with an objective of awareness and general input) with public participation well over 100 and 300 respectively and (2) to a design workshop held at the Lincoln Center once the project was far enough along to be ready for more specific input (active public participation over 30). Highest actual participation (over 20,000) was achieved with the vehicle intercept studies where all vehicles were stopped at defined times and locations and given a simple postcard

Citizens, Lead Team members, and City staff participate in a design workshop.

to complete and drop in the mail. The success of multiple neighborhood open houses was subject to a number of factors, including weather, stage of the project, and venue. While attendance numbers were usually lower at these sites, those citizens who chose to attend were usually especially eager and interested in the project.

The **Public Information and Communication Activities** were designed to generate broad awareness and interest in the project, always with an invitation and the means to follow up for more detailed information and input. These efforts included newsletters, press activities, television, ads, a kiosk, and a project web site.

Chronology of Public Involvement Program

December 1998

- Established staff/consultant Technical Advisory Committee (TAC)—1 to 2 meetings monthly for duration of project

January-March 1999

- Recruited and established 18-member citizen volunteer Mason Street Lead Team—monthly meetings for duration of project (20 meetings through September 2000)
- Researched and implemented direct-mail address list of all property owners and occupants of lots located within ¼-mile either side of BNSF railroad right-of-way (Original list included over 6,000 names)
- Identified and contacted Potentially Affected Interests and added them to mailing list

March-April 1999

- Lead Team meetings
- TAC meetings
- Prepared and distributed press background information, press announcements about project and Vision Questionnaire
- Prepared, published, and mailed first Mason Street project newsletter
- Prepared, published, mailed, and analyzed results from Vision Questionnaire
- Staff article and editorial published in *Denver Post*

May 1999

- Lead Team meeting
- TAC meeting
- Postcard invitation to open house mailed to full mailing list
- Prepared and distributed press releases/Public Service Announcements regarding Vision Open House and Design Workshop
- Feature article published in Local section of Fort Collins *Coloradoan*
- Vision Open House, Lincoln Center Canyon West Room
- Design Workshop, Streets Facility

June-July 1999

- Lead Team meetings
- TAC meetings
- Developed and implemented ongoing Mason Street Transportation Corridor web site at www.fcgov.com

September 1999

- Lead Team meeting
- TAC meeting
- Feature article on Local page, and editorial in Fort Collins *Coloradoan*
- Prepared, produced, and showed a 60-second video on travel survey
- Conducted three types of public "Origin and Destination" transportation choice surveys
- Prepared, published, and distributed second project newsletter

October 1999

- Lead Team meeting
- TAC meeting
- Front-page feature article in Fort Collins *Coloradoan*
- Alternative Concepts Presentations—Open House/ Workshops
  - North Corridor—Lincoln Center, Canyon West Room
  - South Corridor—Harmony Library, Community Room
  - Mid Corridor—Beattie Elementary

November 1999

- Lead Team meeting
- TAC meeting
- Developed and produced 13-minute video introducing the Mason Street Transportation Corridor project

Activity Legend

SEA— Special Events and Activities

AIG— Advisory and Input Groups

PIC— Public Information and Communication

Comments, suggestions, and ideas were shared with City staff and project consultants at the Design Workshop.

December 1999
- Lead Team meeting
- TAC meeting
- Multiple airings of 13-minute project introduction video on Channel 27

January 2000
- Lead Team meeting
- TAC meeting

February 2000
- Lead Team meeting
- TAC meeting
- Press release regarding March open houses
- Featured column in Fort Collins *Coloradoan*
- Multiple presentations to City boards and commissions

March 2000
- Lead Team meeting
- TAC meeting
- Postcard invitation to open houses mailed to full mailing list
- Posters announcing open houses distributed across town
- Multiple airings of 13-minute project introduction video on Channel 27
- Televised presentation at City Council study session
- Transit Alternatives Presentation Open Houses:
  - Open House, 702 W. Drake
  - Open House, Lincoln Center Canyon West
  - Mason Street at the Mall, Open House, Foothills Fashion Mall
- Front-page feature article in Fort Collins *Coloradoan*
- Multiple presentations to City boards and commissions

April 2000
- Lead team meeting
- TAC meeting
- Televised City Council discussion of project

May 2000
- Lead Team meeting
- TAC meeting
- Postcard invitation to design workshop sent to full mailing list
- Ads in Fort Collins *Coloradoan*
- 3-hour Design Workshop, Lincoln Center Ludlow Room

June 2000
- Lead Team meeting
- TAC meeting
- Multiple presentations to City boards and commissions

July 2000
- Lead Team meeting
- TAC meeting
- Published and distributed third project newsletter

August 2000
- Lead Team meeting
- TAC meeting
- Prepared, produced, and televised three 60-second spots on multiple cable channels throughout the month
- Postcard invitation to open house mailed to full mailing list
- Posters announcing open house posted throughout town
- Ads placed in Fort Collins *Coloradoan* and *Fort Collins Forum*
- Special mailing to businesses/hand-delivered invitation to focus groups
- Conduct six separate focus groups in significantly affected areas:
  - Downtown/Midtown Businesses
  - Horsetooth-Harmony segment Businesses
  - Prospect-Foothills Parkway Businesses
  - Horsetooth-Mason Intersection Businesses
  - Troutman Neighborhood
  - Meadowlark Neighborhood
- Press release/Public Service Announcement for open house
- Kiosk display at five City locations
- Item announcing kiosk locations and open house in *City Times*, ad in Fort Collins *Coloradoan*
- Feature announcing kiosk locations and open house in City News insert to City utility bills
- Feature article and ¼-page ad in *Fort Collins Forum*
- Feature article and editorial in Fort Collins *Coloradoan*
- Open House for the draft Mason Street Transportation Corridor Master Plan, Foothills Fashion Mall
- Multiple presentations to City boards and commissions, service organizations, and special interest groups

September 2000
- Lead Team meeting
- TAC meeting
- Televised presentation of draft Master Plan to City Council at a study session
- Multiple presentations to City boards and commissions, service organizations, and special interest groups

October 2000
- Televised presentation of Master Plan to Council for adoption
- Formal tour for participants of national "Railvolution 2000" conference in Denver

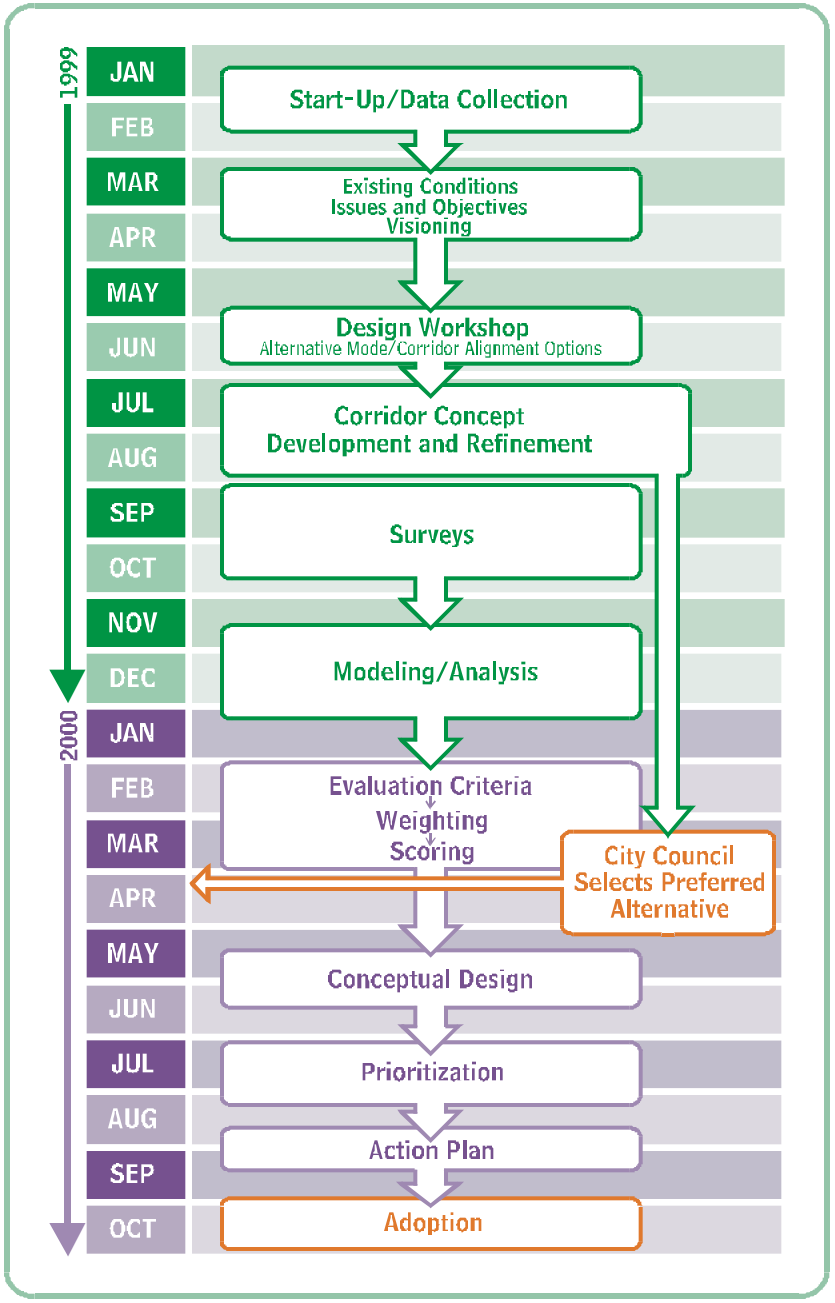
Project Schedule

As a community driven project dedicated to sound planning and forecasting to assure a successful project, the Mason Street Transportation Corridor Master Plan has taken almost two years to complete. The consultant contract began in December 1998. The initial work effort included the collection of data, the analysis of existing conditions, and a community visioning process. In late spring of 1999, a design workshop was held to solicit input from the public on concepts and alternatives for testing.

During the summer of 1999, a wide range of alternatives was developed, including both technologies and alignments. During the fall of 1999, a series of surveys were conducted to determine travel patterns within and through the corridor. This information was used to specifically calibrate a transportation model for the corridor.

Three alternatives were developed and evaluated in the winter of 1999/2000. The Fort Collins City Council selected a preferred alternative in April 2000. Subsequent to this decision, a second design workshop was held for input into the development of a proposed conceptual improvement plan. During the summer, this conceptual improvement plan was refined, including the development of a prioritization and action plan.

Throughout this process there have been numerous opportunities for one-on-one and group meetings in addition to the formal open houses and design workshops for citizen input. The final approval of the design concept and action plan is scheduled for early October 2000.



Corridor Description

Prior to considering what might be a preferred plan for the Mason Street Transportation Corridor, it is first critical to examine the dynamics that make the corridor what it is today. This begins with an understanding of the current corridor character. As one travels from one end of the corridor to the other, vast differences in land use and intensity are evident along the way. It is also critical to understand how the transportation system is operating. Are there problem areas today that will become exacerbated with future growth, are there deficiencies in the current transportation network, or are there questions that require an understanding prior to developing a plan? Finally, there needs to be a problem statement from which to compare plan alternatives.

Character Elements

There are a number of consistent character elements throughout the Mason Street Transportation Corridor. Those include a concentration of places of work and activities, as well as its link to the most important roadway within the city—College Avenue. There are also five unique segments within the corridor. These segments are divided at the key east-west arterials of Laurel, Prospect, Drake, and Horsetooth.

Cherry to Laurel

This segment of the corridor reflects the Historic Old Town of Fort Collins, characterized by grid streets, the Larimer County and City of Fort Collins Government Centers, shopping, entertainment, and businesses. The downtown includes College Avenue (US 287), with its diagonal parking spaces (making it a challenge for traffic engineers but loved by the city's residents because of its pedestrian-friendly environment). This is the location where residents of Fort Collins bring their relatives from out of town to show the pride they have for their city. It is a place of amazing public and private development activities with new government buildings, retail and office development, and overall mixed-use investments.

Pedestrians enjoy an abundance of amenities in the downtown area including retail, restaurants, and organized community events like New West Fest.

Laurel to Prospect

This segment of the corridor includes Colorado State University (CSU). With over 22,000 full-time students, this is the largest activity generator in the entire city. With the recent purchase of the old Fort Collins High School and the addition of a pedestrian undercrossing

beneath College Avenue, the University continues to grow and retain its importance to the academic and community environment. CSU has its own Master Plan that promotes an internal campus that is auto-free, dedicated to bicycle and pedestrian mobility. Transportation capacity and parking are critical issues facing CSU today and in the future.

Prospect to Drake

This segment of the Mason Street Transportation Corridor has a many uses. On the east side of the BNSF Railroad, commercial activities exist that are going through changes in retail character and redevelopment. The west side of the BNSF Railroad includes the CSU College of Veterinarian Medicine and a rapidly growing Natural Resources Research Center that will bring hundreds if not thousands of new jobs to the Mason Street Transportation Corridor. CSU is also preparing its Master Plan for the south campus area which will require linkages between this emerging area and the main campus.

Colorado State University is the largest activity generator in the city.

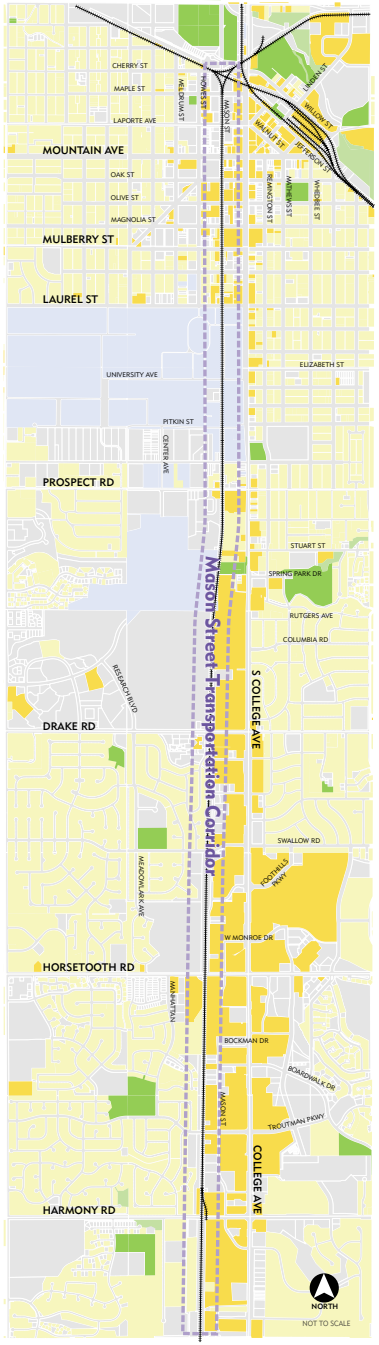
The railroad tracks bisect Fort Collins.

Drake to Horsetooth

This segment of the corridor contains Fort Collins' largest retail mall, the Foothills Fashion Mall, located east of College Avenue. Thousands of additional square feet of commercial and service industries line the College Avenue corridor east of the BNSF Railroad. This segment is also home to many auto dealerships and support industries. To the west of the BNSF Railroad is the Meadowlark Neighborhood, an established, well maintained residential development, which includes schools, parks, and community activities.

Horsetooth to Harmony

As the City of Fort Collins has grown from the north to the south, this area represents some of the newer commercial, restaurant, entertainment, and office activities. It is an area of new infill development, but also might be an area of potential redevelopment as land values increase in this corridor. To the west of the BNSF Railroad is the Troutman Neighborhood. This established, mixed density residential area is the only segment of the entire Mason Street Transportation Corridor that does not have a crossing of the BNSF Railroad for vehicles, bicycles, or pedestrians.



Cherry to Laurel
- Downtown Employment/ Activity Center
- Hub for Regional Rail/Transit Connection
- Downtown College (US 287) Parking/Traffic Congestion Relief
- Connection from Downtown to CSU
- Mulberry (SH 14)/College (US 287) Intersection Congestion Relief

Laurel to Prospect
- CSU Main Campus
- Main Campus/South Campus Connection
- Prospect/College (US 287) Congestion Relief
- Linkage to CSU Transit Center
- Connection from CSU to Housing/Employment/Shopping

Prospect to Drake
- Natural Resources Research Center
- Major Retail Center
- Drake/College (US 287) Congestion Relief

Drake to Horsetooth
- Connection to Employment, CSU, Shopping, and Recreation
- Horsetooth/College (US 287) Congestion Relief

Horsetooth to Harmony
- Harmony/I-25 Regional Transportation Hub Connection
- Connection to Front Range Community College
- South Hub for Regional Rail/Transit Connection
- Harmony/College (US 287) Congestion Relief

Existing Conditions

The City of Fort Collins Transportation Master Plan provides level of service standards for each travel mode including motor vehicle, public transit, bicycle, and pedestrian. In its simplest form, level of service (LOS) is a grading system from "A" to "F" where "A" is excellent and "F" is failure. Each travel mode has its own minimum acceptable target level of service. The following summarizes the existing LOS for the Mason Street Transportation Corridor.

Automobile Levels of Service

Motor vehicle LOS is based on the average delay per vehicle. The LOS analysis is based on existing turning movement counts for signalized intersections collected in May 1998. Additional input into the LOS calculation include:

- lane widths,
- intersection geometry,
- turning movement counts,
- pedestrian counts,
- pedestrian timings—including flashing don't walk and walk time, and
- yellow and red clearance times.

The City of Fort Collins standard for intersections within the study area is LOS E. The relationship between average vehicle stopped delay and LOS are as follows.

As presented in the LOS map on the next page, intersections within the corridor are operating acceptably during the am peak hour with existing conditions. During the pm peak hour, intersections are approaching the City's LOS threshold at the major east-west arterials.

During the peak traffic periods, traveling on College Avenue can be much slower than desired. The delay at traffic signals can lead to frustration and a lack of patience. The table on the next page shows the average travel time along College Avenue from Jefferson Street to Harmony Avenue.

As a comparison to the actual travel speeds along the corridor, the average travel time if traffic moved efficiently at

Mason Street Transportation Corridor Signalized Intersections Level of Service

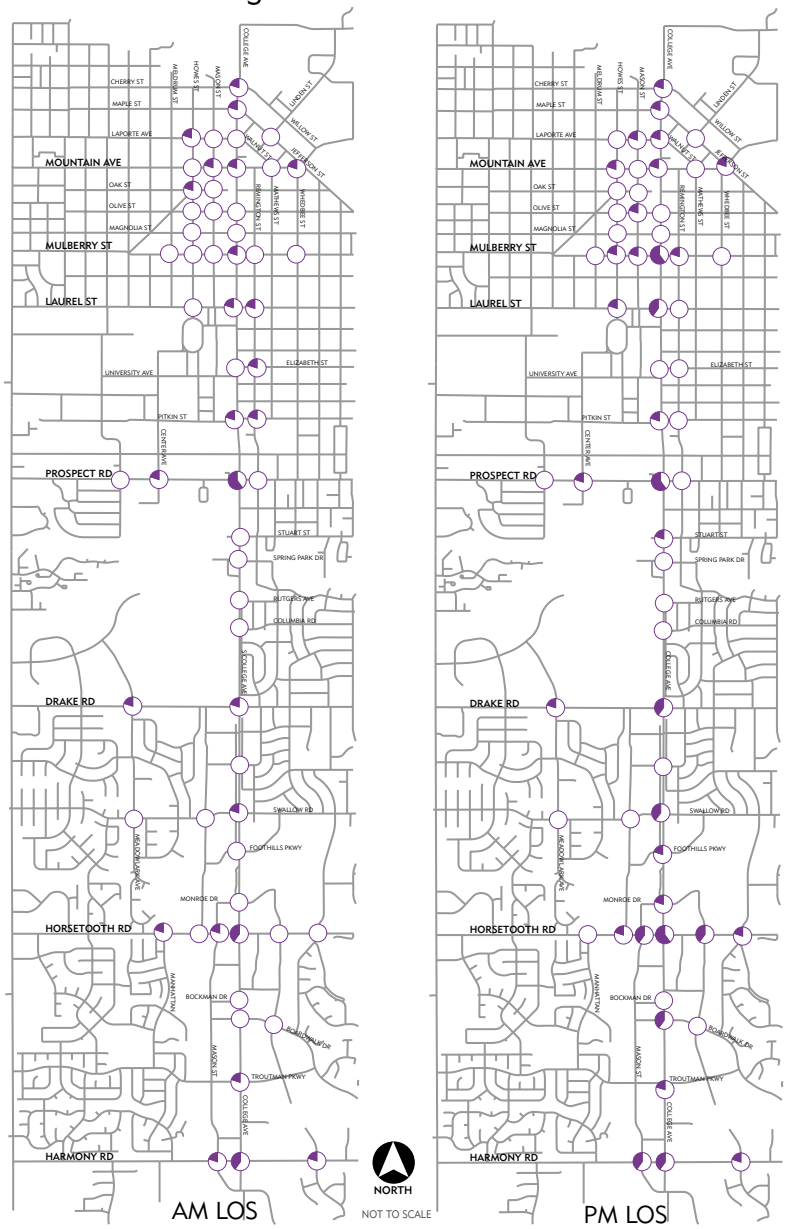
LEGEND

A B C D E F

Level of Service Criteria for Signalized Intersections (table 9-1 from 1997 HCM)

Level of Service	Control of Delay (sec/vehicle)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80.0

Note: Levels of Service are representative of the intersections operating under a reliable traffic control system.



Monday - Friday

uncongested speeds and without excessive delay at the traffic signals should be about 8 minutes. As realized, the corridor is currently experiencing delays and congestion which will increase with future growth.

Peak Period	Northbound Harmony to Jefferson	Southbound Jefferson to Harmony
Weekday Morning	11 minutes	10 minutes
Weekday Mid-Day	12 minutes	13 minutes
Weekday Evening	14 minutes	14 minutes
Saturday	16 minutes	15 minutes

Pedestrian System

There are five LOS standards specified for pedestrians. These are:

- **Directness**—Walking distance to destinations including transit stops, schools, parks, commercial employment or activity areas. Measurement of directness is the ratio of the Actual distance to a destination via sidewalk or pathway divided by Minimum distance characterized by the grid system.
- **Continuity**—The completeness of the sidewalk/walkway system with avoidance of gaps. LOS range from an A/B, where the pedestrian corridor is integrated within the activities along the corridor; to a C, where continuous sidewalks vary by width and design; to D/E, where there are breaches in the pedestrian network; to F, which indicates large gaps in the network.
- **Street Crossings**—Safety and comfort at crossing streets at signalized intersections, unsignalized

intersections and mid-block crossings. Factors that affect pedestrian LOS include number of lanes to cross, signal indication, crosswalks, lighting, raised median width, visibility, curb ramps, pedestrian buttons, convenience, comfort and security.

- Visual Interest and Amenity—Visually appealing and compatible with local architecture, including environmental enhancements (such as pedestrian street lighting, fountains, and benches) to an experience of discomfort and intimidation associated with absence of amenities and compatible design.
- Security—Pedestrians are within visual lines of sight with others, separated from motor vehicles and bicycles, and have adequate street lighting.

The City has established different pedestrian target LOS standards for different parts of the city. The Mason Street Corridor study area generally falls into two areas, the Downtown/CSU area north of Prospect and the activity corridor south of Prospect. These pedestrian standards are shown in the chart below.

The Mason Street Transportation Corridor generally has excellent levels of service north of Prospect and poor LOS south of Prospect. This poor LOS is characterized by major missing portions of the sidewalk system which results in poor continuity, deficiencies in directness from east of the BNSF Railroad to the west, and major street crossing problems along the BNSF Railroad at Laurel, Drake, Horsetooth and Harmony.

Bicycle System

Bicycle mobility is minimally served within the overall Mason Street Transportation Corridor. Much of the corridor has no facilities whatsoever. There are currently no north-south connections between Laurel and Drake. Signs on College Avenue state that bicycling is not permitted. Connections are also not available for the east-west arterials of Laurel, Prospect, Horsetooth, and Harmony.

A bicycle LOS analysis was undertaken for those few facilities that do accommodate bicycles. The methodology used for evaluating bicycle LOS is based on the Federal Highway Administration (FHWA) Bicycle Compatibility Index for rating LOS. The model predicts the overall comfort level rating of bicyclists using eight significant variables including: number of lanes, curb width, bicycle lane width, adjacent land use, automobile speed, peak hour volume, percent of vehicles that are large trucks, and percent of vehicles that turn right.

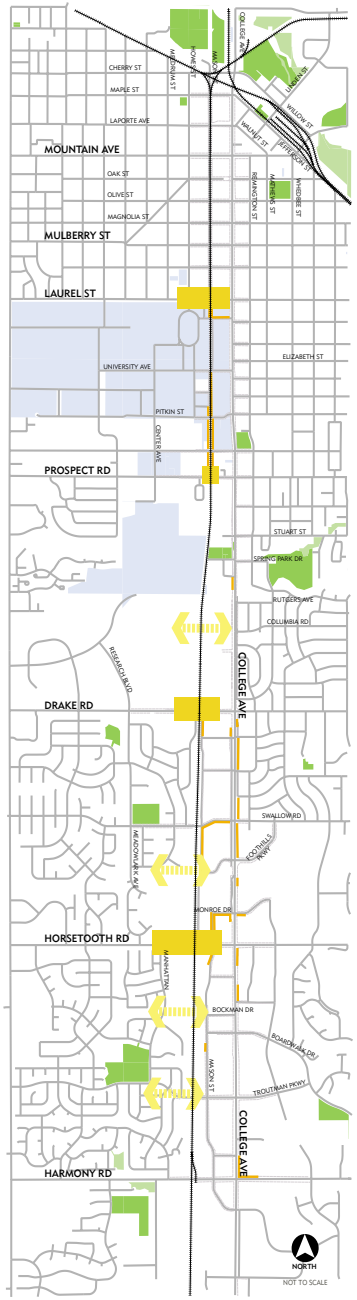
There are three segments of bicycle routes along the corridor. The segment of Mason Street from Cherry to Laurel ranges in level of service from B to D; the segment of McClelland from Drake to Horsetooth is B and C; and Mason from Horsetooth to Harmony is C and D. Based on the analysis, not only does the existing Mason Street Transportation Corridor have major portions of the bicycle network missing, but major segments are below the city-wide minimum level of service C.

Pedestrian Levels of Service Standards

	Directness	Continuity	Street Crossings	Visual Interest & Amenities	Security
North of Prospect	A	A	B	A	A
South of Prospect	B	B	B	B	B

Poor levels of service affect pedestrians and cyclists alike.

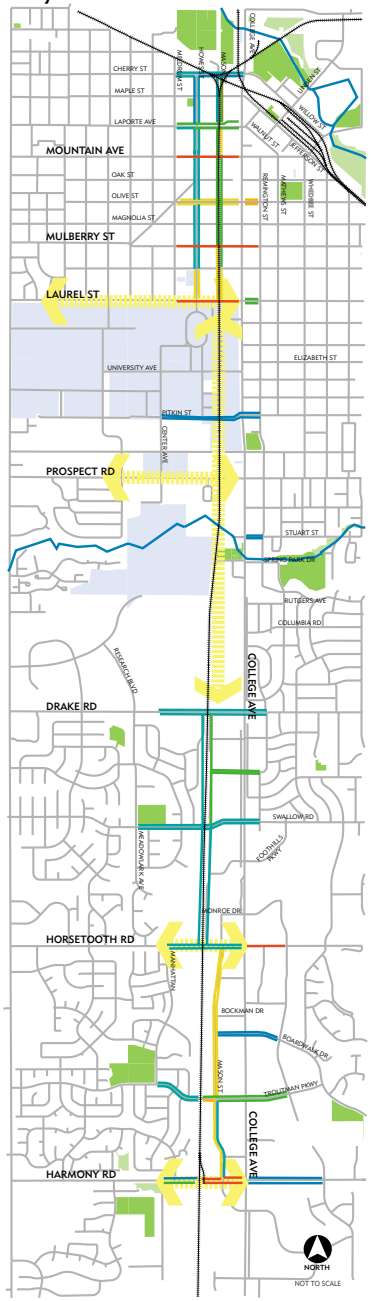
Pedestrian Level of Service



Pedestrian Level of Service Problem Areas
- Missing Sidewalks
- Arterial Crossing Conflicts
- No BNSF RR Crossings

- Parks
- Natural Areas
- CSU Property

Bicycle Level of Service

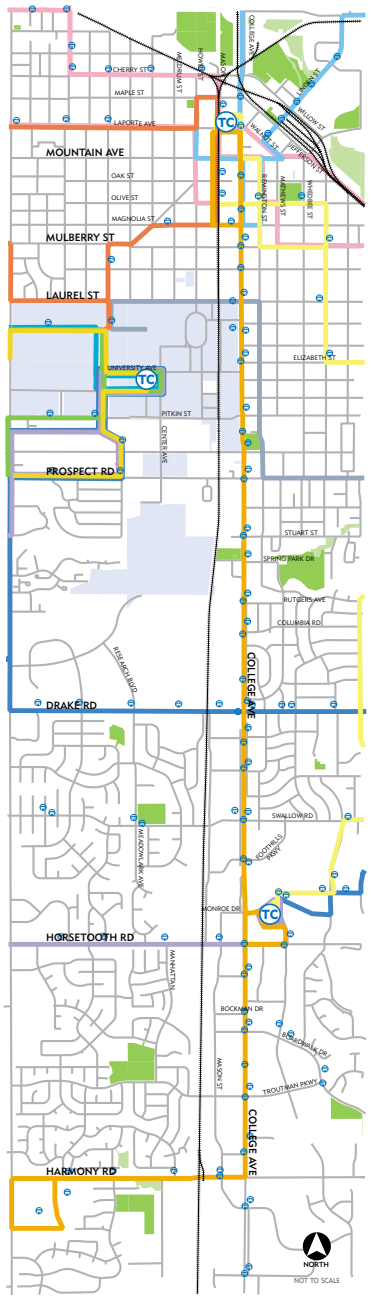


Bicycle Level of Service
- A
- B
- C
- D
- E
- F

- No Bicycle Facilites or Connections

- Parks
- Natural Areas
- CSU Property

Current Transit Service



Transit Service

Transfort Routes
- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6
- Route 7
- Route 8
- Route 9
- Route 10
- Route 11

- Bus Stop
- Transit Center

- Parks
- Natural Areas
- CSU Property

Transit Service

Transfort, the City of Fort Collins' transit system, operates 14 bus routes within the city and one between Fort Collins and Loveland on 20, 30, or 60 minute headways. Most of the routes operate year round; however, four of them operate only when CSU is in session. One of the CSU routes runs late on Friday and Saturday. Generally, all other routes operate between 6:30 am and 7:00 pm six days a week. There is currently no Sunday bus service. No formal park-and-ride lots exist within the system, but three transit centers are located at CSU, near Old Town, and near Foothills Fashion Mall on the south.

Fares are currently $1.00 per ride, although reduced fare passes are available. Youth and students ride free. All full-time, fee-paying CSU students receive a Transfort pass as part of their required fees. Seniors and disabled citizens ride at a reduced fare.

Transfort ridership is between 5,000 and 7,000 riders per weekday when school is in session, depending on the season. In 2000, Transfort expects to serve over 1.4 million riders.

Burlington Northern Santa Fe Railroad

The majority of the trackage in the Mason Street Corridor belongs to the Burlington Northern and Santa Fe Railway. The trackage running down Mason Street is known as the Front Range Subdivision of the Colorado Division to the BNSF. The Front Range Subdivision is a secondary main line between Denver and Cheyenne. BNSF's primary main line into Denver from Wyoming and Nebraska is located in the northeastern part of Colorado and travels through Sterling, Brush, Fort Morgan and Hudson. The primary main line is known as the Brush Subdivision of the Colorado Division. The line running down Mason Street currently carries an average of eight freight trains per day. There are no regularly-scheduled passenger trains operating on the line.

The freight trains range in length from a few cars for a local train to 3,500 to 8,000 feet for a through train. A local train serves various industries along the line by setting out and/or picking up loaded or empty cars. A through train passes over the line on its way to and from more distant origins and destinations. Through trains carry commodities of all types and descriptions and are often operating on time sensitive schedules. The current allowable maximum operating train speeds in the Mason Street Transportation Corridor are 15 mph between North College Avenue and Prospect Road and 35 mph between Prospect Road and approximately one mile south of Harmony Road.

Development abuts BNSF Railway right-of-way.

In addition to the BNSF, the Great Western Railway (GWR), an OmniTRAX property, and the Union Pacific Railroad (UP) operate branchline trackage at the north end of the Mason Street Corridor. Branchline trackage normally handles only local trains that serve customers not located directly on a main line route. The GWR and the UP lines enter the north end of Fort Collins via shared trackage. The shared trackage operation resulted from a consolidation project recently completed by the City of Fort Collins. The GWR line runs between Fort Collins and Greeley via Windsor. The UP line runs between Fort Collins and Greeley via Milliken and LaSalle. The GWR and the UP essentially operate one train each weekday in the Fort Collins area.

Railroad Concerns and Issues

The railroad concerns and issues associated with the Mason Street Transportation Corridor are primarily as follows:

- safety and exposure to risk,
- line capacity, and
- impacts of passenger service upon freight operations

Safety and Exposure to Risk

Safety of railroad employees, of the general public, and of railroad equipment; and the exposure to risk associated with safety are the most important concerns of any railroad. Accidents at highway crossings and accidents involving trespassers are the most common problems that the railroad has with respect to the general public. Federal agencies are currently accelerating programs to address crossing and trespassing safety issues. Closing lower traffic volume streets or grade separating busy crossings is preferred wherever possible. Improving the warning devices at both public and private crossings is also being promoted. Addressing the trespassing problem is more difficult given the expansive nature of railroad right-of-way. In the past year, more deaths occurred due to trespassing on railroad property than due to accidents at highway crossings.

Safety is a concern for bicyclists, pedestrians, and motorists alike with freight trains moving through the center of Mason Street.

Another safety concern for railroads is that of train derailment. Derailments can involve one or two wheel sets coming off the rail to several cars being scattered in many directions along the alignment. Derailments involving hazardous materials are of special concern due to the potential danger to adjacent neighborhoods and businesses.

Line Capacity

The normal capacity of a line in terms of the number of trains that can be operated over the line is directly influenced by the maximum operating speed, the configuration and condition of the track, the type of signal system, and the types of trains operating over the line.

- Train speed—The speed at which trains can safely be operated is one of the factors that influence operating cost and line capacity. Operating faster trains allows more trains to be operated in a given time period. If more trains can be operated over a given line, then the line becomes more efficient and the operating costs are lower. Faster train speed also results in less delay for motorists at road crossings and less opportunity for unauthorized access to the train cars and their contents.
- Track—Federal Railroad Administration (FRA) regulations establish minimum safety standards for railroad track. These regulations govern the maximum train speed allowed for given track conditions. The major railroads, including BNSF, utilize main line track standards that typically exceed the minimal Federal requirements. The configuration of the track also determines line capacity. A double track line can handle more trains in a day than a single track line. The arrangement and spacing of crossovers (allows a train to cross from one track to another adjacent track) and sidings (shorter tracks adjacent to main line tracks which allow one train to get out of the way so that another train can pass) also determine the capacity of a line. A line that has grades will have a lower capacity than will a line that is essentially flat, because trains cannot operate as fast up and down grades as they can on level ground.
- Signal system—FRA regulations also establish train speeds and operations given the presence or lack of a railroad signaling system.

The BNSF line through Fort Collins does not have a signal system (known as "dark territory" in the railroad industry). Because the line is not signaled, maximum train speed is limited to 49 mph for freight trains and 59 mph for passenger trains. Signals do exist on the BNSF line, but they only protect train movements at the crossings with the UP and the GWR at the north end of town.

- Types of trains—The types of trains operating over a line also influence line capacity. Trains consisting of high priority traffic operate at faster speeds than trains consisting of bulk traffic. If a line carries more bulk commodity trains, its capacity will be lower than if it carried more high priority trains. The BNSF line through Fort Collins carries mostly higher priority trains with an occasional bulk train of grain.

Impacts of Passenger Service Upon Freight Operations

While the ability to provide passenger service without interfering with freight operations is directly related to the line capacity issues discussed above, there are a few other railroad concerns that need to be considered.

One of these concerns involves the type of passenger train equipment that is used to provide the service. FRA regulations require that passenger train equipment must meet specific structural and safety standards if it is to be operated over or in conjunction with any part of a railroad line that is connected to the national rail network. Rail equipment that meets these requirements is considered to be "FRA compliant". The Federal Transit Administration (FTA) and the FRA are currently coordinating regulations and standards that govern the operation of "non-FRA compliant" equipment relative to railroad lines. Examples of compliant passenger rail equipment are Amtrak intercity trains; diesel powered commuter trains such as Chicago METRA, Los Angeles Metro link, and Florida Tri-Rail; and special trains such as the Ski Train and the American Orient Express. Examples of non-compliant passenger equipment include light rail systems in Denver, Portland, Los Angeles, San Diego, Sacramento, and San Jose. The operation of non-compliant passenger equipment on railroad lines can be permitted under certain circumstances if the FRA grants a waiver.

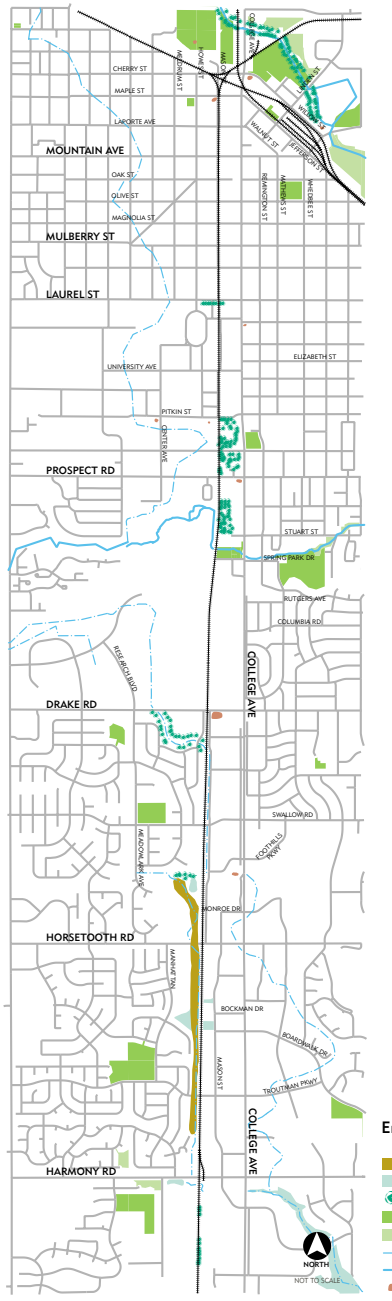
Another concern that a railroad has relative to passenger operations involves the stations and facilities for the passenger service. Stations and platforms must be designed to allow clearance for freight trains. Yard and shop and layover facilities must not interfere with freight operations.

The BNSF line through Fort Collins carries mostly higher priority trains with an occasional bulk train of grain.

Another concern involves the designated operator for passenger service that operates in conjunction with a railroad line. The operator of the passenger service must be qualified and the operation and equipment must be in compliance with all of the Federal and State regulations and standards. In some instances, the railroad that owns the rail line will prefer to operate the passenger service.

The common railroad industry position relative to passenger service is that the railroad will not pay for any improvements to their lines that they require in order for passenger service to be implemented. The railroads may participate in funding by providing basic track materials under certain circumstances where the benefit to railroad operation is significant. Generally, however, the railroad looks at any required passenger service related improvements as a cost of doing business for the passenger operation.

Environmental Features



Natural Environment

Wildlife and Vegetation

Though the Mason Street Transportation Corridor is largely developed, some parcels of land contain suitable habitat for wildlife, and mature trees line the Corridor north of Prospect Road. Several species adapted to urban conditions, including squirrels, red fox, and species of songbirds, are known to reside along or move through the Mason Street Transportation Corridor. Two red fox dens have been identified in the Corridor, one of which has been displaced recently by a new residential development northwest of Horsetooth Road and Mason Street. Redtail Grove, a 40-acre city natural area south of Harmony Road, is the largest undisturbed parcel along the Corridor. The tract name was derived from the red-tailed hawks that have nested there for a number of years.

No federal or state listed species have been identified in the Corridor, and surveys have failed to identify suitable habitat for the federally threatened Preble's meadow jumping mouse or Ute ladies'-tresses orchid.

Wetlands and Water Resources

Several water features are within the Corridor, though no significant features will be substantially affected by the proposed project. Several isolated wetlands and small ponds are scattered along the southern end of the Mason Street Transportation Corridor. Spring Creek crosses the Corridor just south of Prospect Road, Fossil Creek crosses south of the corridor in Redtail Grove, and an irrigation canal enters the Corridor just south of Horsetooth Road and runs parallel to the BNSF tracks south to Harmony Road where it leaves the Corridor to the east. The streams and canal may be crossed by new construction in the corridor, but at this time the features do not appear to require relocation.

Air Quality and Noise

Air quality in Fort Collins is measured in terms of carbon monoxide, particulates, and ozone. Although the region is designated as a nonattainment area for carbon monoxide, air quality has improved during the past decade. Factors that affect air quality include vehicle miles traveled, speed of travel and delay at intersections, and the efficiency of automobile engines.

The Mason Street Transportation Corridor contains receptors that could be sensitive to increased noise, particularly residential neighborhoods between Drake and Harmony Roads. Although Mason and McClelland Streets and the BNSF tracks already introduce vehicle noise along much of the Corridor, the volume of traffic may increase or be located closer to residential areas. However, the proposed frequency of motorized vehicles and preferred transit mode are not likely to noticeably increase ambient noise.

Other Resources

The Corridor contains several small areas of soil or groundwater contamination that may require avoidance, containment, or remediation, depending on the final alignment and timing of construction. All known contaminated sites have been or are being addressed by State regulators.

Travel Demand

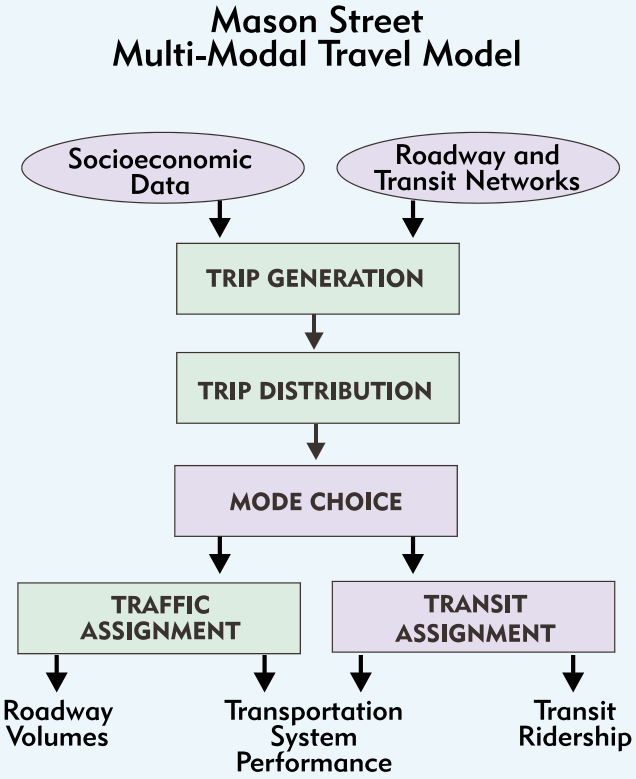
Much of the mobility-related information necessary to support the Mason Street decision-making process comes from the travel demand model developed specifically for this project. Travel demand models have been in use since the 1950s and are required for transportation planning activities in metropolitan areas in order for projects to be eligible for federal funding. They utilize a market-based approach by considering both the transportation supply and travel demand for producing mobility characteristics such as roadway traffic volumes and transit ridership.

Before a model can be used for predicting future volumes and ridership, it must first be calibrated to ensure existing conditions can be properly produced. Current travel behavior information is obtained from travel surveys and other data collection techniques and incorporated into the model through mathematical representations. Once the model is satisfactorily calibrated, it can be applied to provide mobility results on various land use/socioeconomic and transportation alternatives.

Travel Behavior Data

In the fall of 1999, the City of Fort Collins conducted three travel surveys designed to provide specific travel behavior information for the Mason Street and College Avenue corridors:

- The **Vehicle Intercept Survey** was conducted on the streets in and around the Mason corridor using a postcard-mailback technique to determine origin-destination patterns, trip purposes, vehicle occupancies, trip occurrence times, and other pertinent information from vehicle users in the corridor.
- Surveyors distributed questionnaires to bus patrons during the **Transfort Onboard Transit Survey** to obtain travel behavior information from transit users. A count of the daily bus system ridership was recorded as part of this survey.

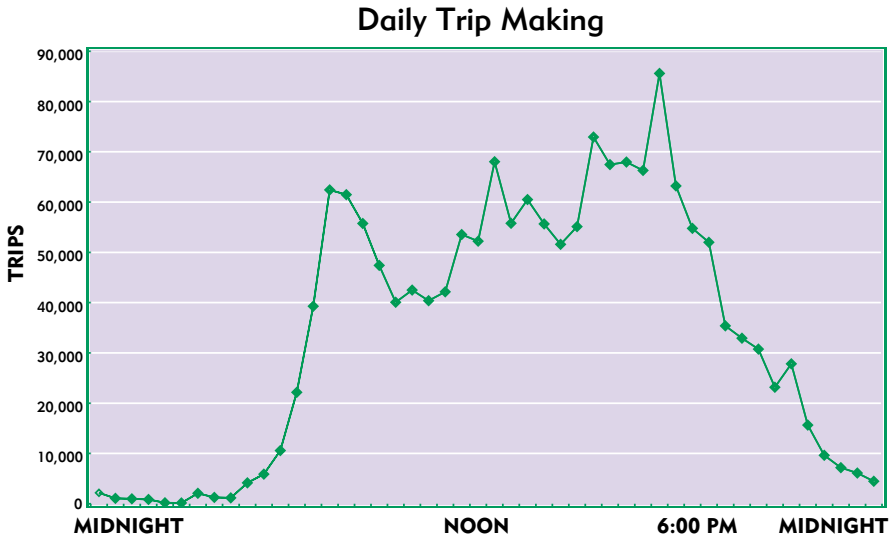


The travel demand modeling process estimates trip-making behavior through a four-step process. Various socioeconomic scenarios and transportation alternatives can be forecasted by the model. Roadway traffic volumes, transit ridership, and system performance characteristics are produced by the model's application.

- For the **Colorado State University Special Generator Study**, trips to and from campus were recorded and employees, students, and visitors were randomly surveyed so that the travel activity to and from the campus could be accurately represented in the travel model.

In each of these surveys, socioeconomic data was collected from each respondent so that relationships can be developed for determining who, why, and how much people travel. Information from individual trips provides insight into when, where, and how trips are made.

In addition to the three Mason Street surveys, travel behavior data was also acquired from a regional household survey conducted by the North Front Range Transportation and Air Quality Planning Council. In the 1998 Mobility Report Card Household Survey, approximately 1,100 households in the region recorded detailed information for each trip taken by each household member over the course of a day. Since much of the trip-making characteristics embedded in the travel model are household-based, the household survey yielded important information for the travel model development effort.



Prominent morning and evening peak periods combined with a growing midday peak in the Mason Street Transportation Corridor are indicative of congestion effects and the need for transportation investments.

Travel Model Development

The Mason Street Multi-Modal Travel Model was built from the results of the aforementioned data collection activities. Travel behavior data from other regions of similar size and character augmented the effort. The model covers the geographic region of the North Front Range and incorporates the travel effects of trips in, through, and across the region. Bike, walk, transit, and vehicle trips are all included. The model can be applied to produce roadway traffic volumes, transit ridership, and a multitude of travel-related characteristics such as vehicle miles of travel, congestion delay, air quality results, and many others. It can test variations in future land use/socioeconomic assumptions and transportation alternatives.

Travel behavior characteristics of the North Front Range region, and specifically the Mason Street Transportation Corridor, have been embedded in the model. Using a market-based approach, the model relies on socioeconomic data (e.g., households, employment) to determine travel demand and system attributes (e.g., roadway capacity, speeds, distances, transit routes, etc.) to represent the transportation supply. Through a four-step process described below, the model provides the mobility-related information necessary to support the decision-making process for the Mason Street project.

The model's four-step process includes the following components:

- **Trip Generation** determines the location, magnitude, and purpose of trip-making based on land use and socioeconomic input data.
- **Trip Distribution** identifies origin and destination travel patterns by calculating trip lengths and travel

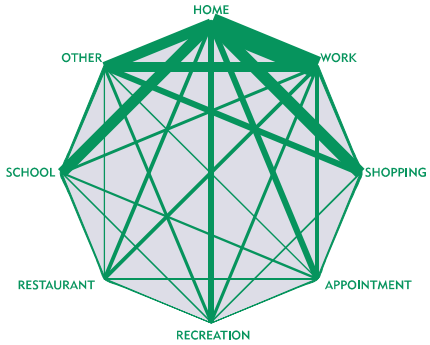
times from transportation system attributes.

- In **Mode Choice**, trips are sorted into the various bike, walk, transit, and vehicle modes.
- Through **Trip Assignment**, routing paths for vehicle and transit trips are determined for several time periods throughout the day.

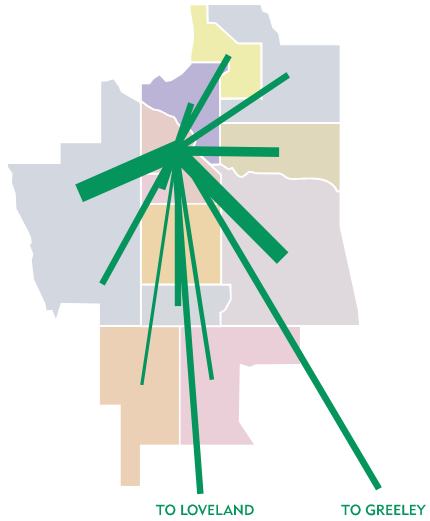
Roadway traffic volumes and transit ridership are among the mobility results produced by the vehicle and transit trip assignment routines. Several validation tests were performed for each phase to ensure that the model represents base year 1998 conditions to the greatest extent possible. The most basic, and perhaps most important, validation tests compare the base year traffic volumes and transit ridership predicted by the model to actual traffic and transit counts. In this regard and based on several other checks, the model performs well and is suitable for use in forecasting future year 2020 travel demand for transportation and land use alternatives.

Population and employment increases are essential to the economic prosperity of the city because they provide the basis for activities upon which economic growth occurs. The transportation system provides the avenues for accommodation of growth. The Mason Street Transportation Corridor, including College Avenue, is one of the fastest growing and most congested areas in the North Front Range region. In order to ensure the future economic viability of the Mason Street Transportation Corridor additional transportation improvements will be necessary. Otherwise, traffic congestion will strangle the corridor and new jobs could move elsewhere to competing locations.

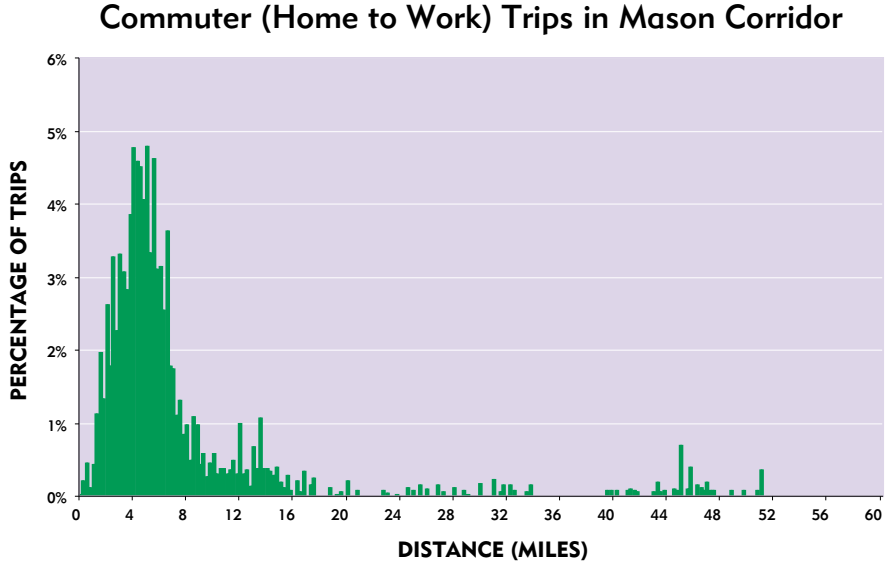
Recent trends suggest that the Mason Street Transportation Corridor'S strong socioeconomic growth will continue as long as transportation infrastructure improvements keep pace. The Mason corridor has seen tremendous growth and some areas are fully developed.



The Mason Street Transportation Corridor supports a variety of activities as indicated by the types of trips that occur within it. Many of these trips have high propensities for transit usage.

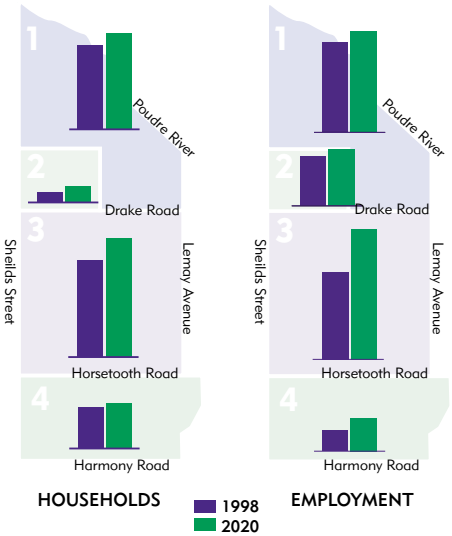


A significant number of trips to and from Old Town occur within the Mason Street Transportation Corridor and could benefit from additional transportation alternatives to the congested College Avenue.

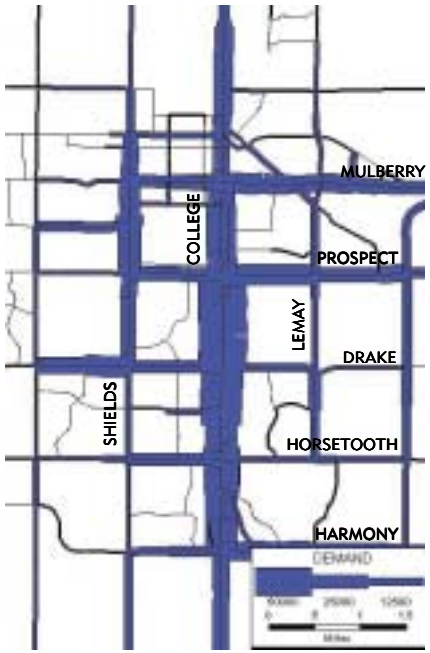


Half of the trips in the Mason Street Transportation Corridor are less than 6 miles in length and within a reasonable range for bicyclists.

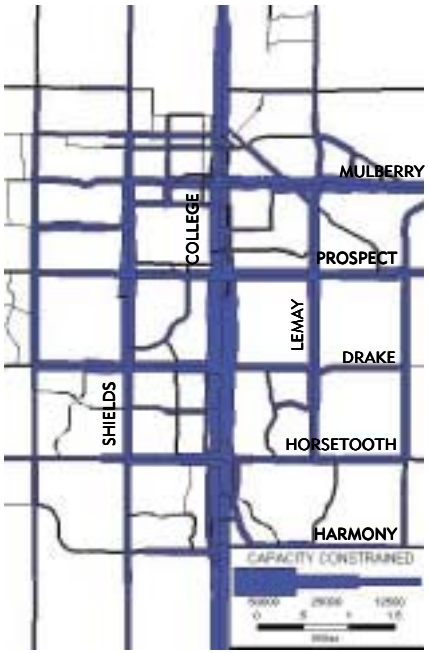
However, many parcels in the corridor show promise for new developments, redevelopment to higher economic uses, or increased density developments. This is especially true for the commercial and retail sectors. Opportunities still exist for higher density dwelling units and, to a lesser extent, single-family dwellings. City Plan estimates call for about one percent per year growth in socioeconomic activity through the year 2020, which amounts to 19 and 30 percent overall increases in households and employment between 1998 and 2020.



Travel with No Capacity Constraints



Travel Constrained by Capacity



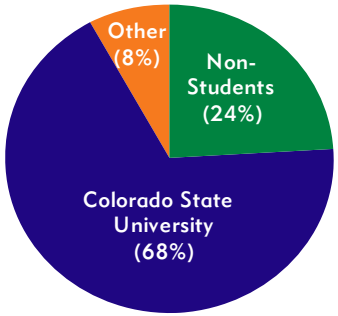
Difference

The network plot on the left shows the current desired demand for travel on roadways in the Mason Street Transportation Corridor regardless of capacity limitations. Travel demand shown on the center plot is the real-world scenario with travel constrained by available capacity in the corridor. The difference, those travelers that divert their trips to avoid the congested College Avenue, is displayed on the right-most plot. The green indicates trips that are diverted to other facilities because of limited capacity. The red indicates facilities which attract traffic from congested streets. This situation will continue to be exacerbated as growth in the corridor continues to increase.

Population growth will continue to fuel the need for transportation infrastructure improvements in the Mason Street Transportation Corridor.

Recent and future employment growth trends establish the Mason Street Transportation Corridor as one of the major economic engines of the North Front Range.

Transfort Bus Rider Profile



Colorado State University (CSU) is located at the heart of the Mason Street Transportation Corridor. As expected, given Transfort's current configuration that targets the CSU market, 68 percent of bus system riders are students.

Corridor Vision

Problem Statement

Based on an assessment of current conditions and considering the ramifications of future development and growth of the Corridor, the following Mason Street Transportation Corridor Problem Statement was developed to devise alternatives and evaluation criteria for the selection of a preferred alternative.

1. The College Avenue corridor is the core north-south backbone of the City of Fort Collins. Numerous commercial, cultural, educational, and government destinations are situated along the corridor within a few blocks of College Avenue (US 287). The continued economic viability of this Corridor depends on a high level of mobility.
2. Automobile capacity in this corridor is physically limited. College Avenue (US 287) is at capacity—approaching "F" (failing) level of service—and is constrained from widening to accommodate growing needs because of the enormous cost of removing many businesses and homes. As Fort Collins grows, automobile congestion and expensive or nonexistent automobile parking will increasingly threaten the viability of the corridor.
3. There is currently no safe and convenient transportation corridor dedicated to reasonably quick multimodal movement, which includes vehicular, bicyclist, transit commuters and pedestrians whose destinations are activity centers on or near College Avenue (US 287). Bus transit is not heavily used. Access is not convenient. Integration and better connections are needed to the city wide and regional transportation system.
4. The development of a Mason Street Transportation Corridor represents a rare opportunity to ensure the long-term viability, livability and functionality of this critical core urban zone. It has the potential of providing a choice of high quality transportation modes, including alternative modes, vehicular modes, and parking.

"The Vision

Imagine this …

….a city that, in its continuing transformation from a small city to a major metropolitan center in Northern Colorado, has successfully channeled "growth" into positive "community development." A city whose transportation system is centered along the Mason Street Transportation Corridor supported by multiple modes of travel. A corridor that supports a compact land use pattern and links together multiple activity centers, parking and neighborhoods. And a corridor that provides regional linkages and connections, within Northern Colorado and along the Front Range.

Multiple Means of Travel

….a corridor that makes choices for transportation a real possibility. It shifts the balance towards a future in which different modes of travel are widely utilized, in order to relieve the congested College Avenue corridor. Access is convenient. Our vision achieves a miracle in Fort Collins in that transit options are attractive and highly utilized.

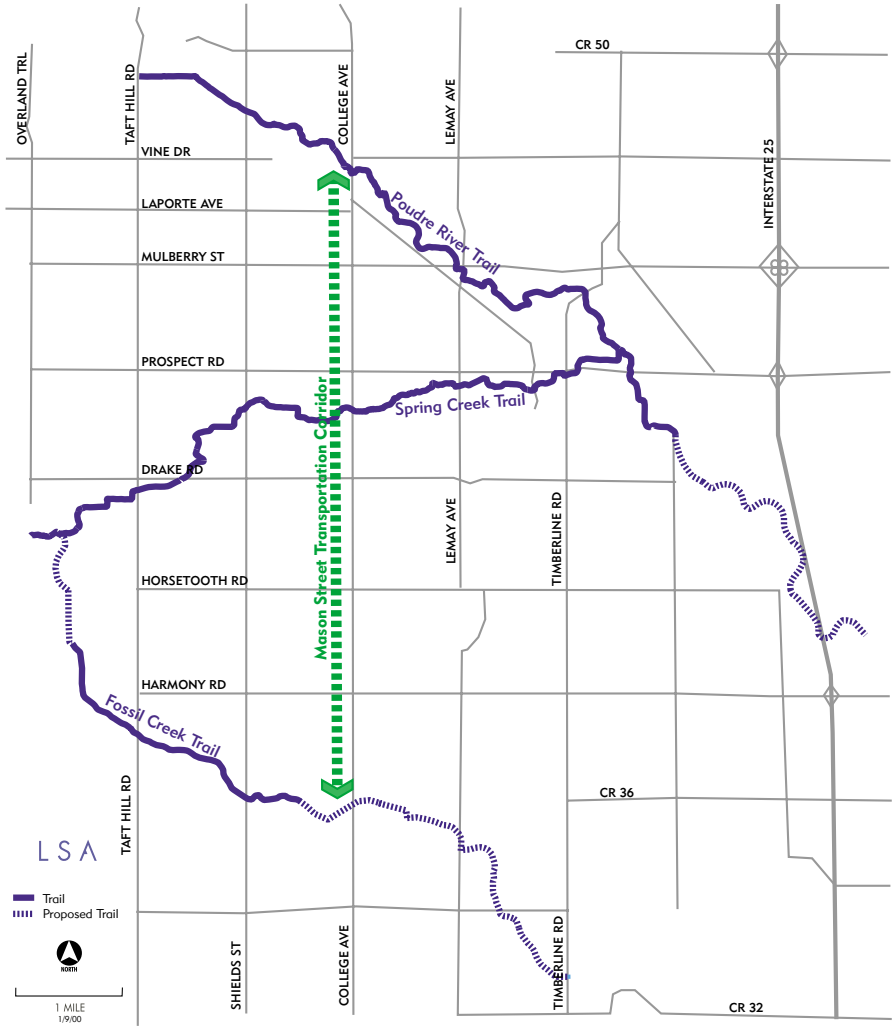
Linking Activity Centers and Neighborhoods

….. a corridor that links together major destinations and activities … the downtown Civic Center, Colorado State University, the South College Avenue retail corridor, and south Fort Collins. Integration and better connections are successfully made to city-wide and regional transportation systems. The corridor will strengthen and unify the city as a whole, as well as the activity centers and neighborhoods that it connects.

Enhancing the Image and Vitality of our City

….the development of a Mason Street Transportation Corridor represents a rare opportunity to ensure the long-term viability, livability, and functionality of this critical core urban zone. It has the potential of providing a choice of high quality vehicular and alternative transportation modes and parking. Our vision for the corridor is for a cohesive design that integrates transit, bicycling, walking, and vehicular traffic in an attractive, urban environment."

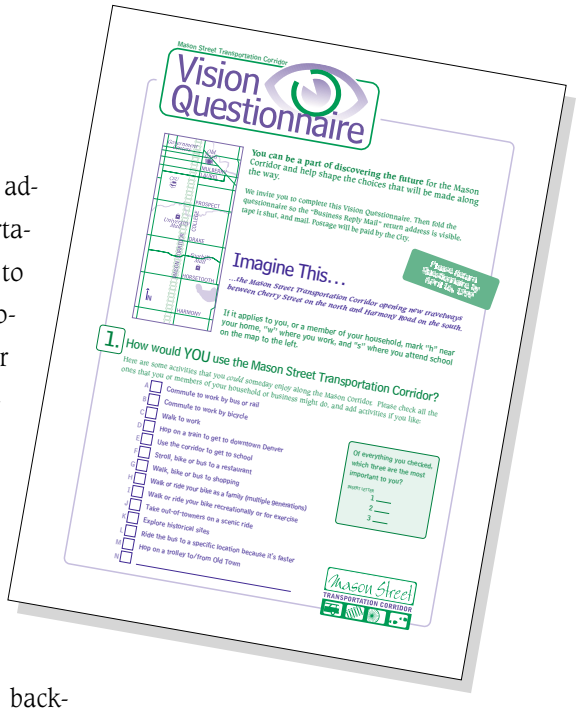
Mason Street Transportation Corridor Bicycle Connection



Vision: To provide a north/south bicycle connection with the Poudre River, Spring Creek, and Fossil Creek Trails

Corridor Vision

Prior to developing alternatives to address the Mason Street Transportation Corridor, it was desirable to design a vision questionnaire to solicit from the community their ideas or vision on what the Corridor could look like. A Vision Questionnaire was administered as "a means of obtaining broad community input in the development of a vision for the Corridor." The questionnaire included project information and background and was designed to solicit input on a number of focused topics. The purpose of the vision questionnaire was to invite the respondents to focus in on the project through some fairly defined questions regarding connections, community character, purposes, and ideas for new development. Approximately 4,000 questionnaires were distributed with a return of 352, for a response rate of about 6-7 percent.



There are many different opinions on the vision for the Corridor; however, a general consensus is that the Corridor should be busy with many people enjoying themselves; walking, biking, sitting and talking. Most of those that responded indicated that the Corridor should be landscaped and attractive. Some would like to see an "Old Town" feel to it. They mostly want the corridor to fit into the community and be highly used. They want it to be a fun, friendly, attractive environment that they can be proud to take visitors to.

Many envision little shops and vendors along the Corridor, like delis, coffee shops, and places for entertainment. It should be a fun place to be with greenbelts and benches throughout. Also, many see some sort of outdoor artwork and fountains along the Corridor. A large number of the respondents indicated that it should be used year-round and a place to take families.

A general comment was the recognition for easy access to the adjoining neighborhoods and businesses, and ample parking for those wanting to use the Corridor from other parts of the city.

Some respondents envision the Corridor as a convenient way to get from point A to point B, whereas others vision the Corridor as a potential activity corridor where they could spend the day with their friends or families.

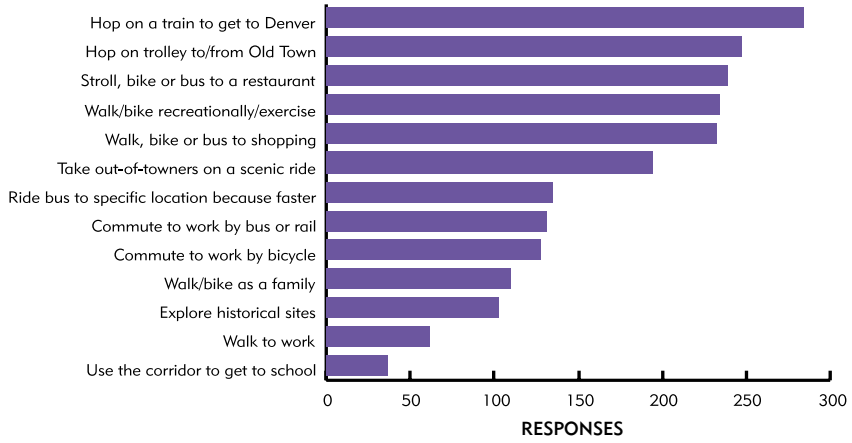
A significant number of respondents feel that lighting, safety, and security is very important. They see the Corridor being used into the night and providing a safe environment for children and adults alike.

The general consensus was that pedestrians, bikers, and commuters should all make use of the Corridor; however, these groups should be safely separated from one another.

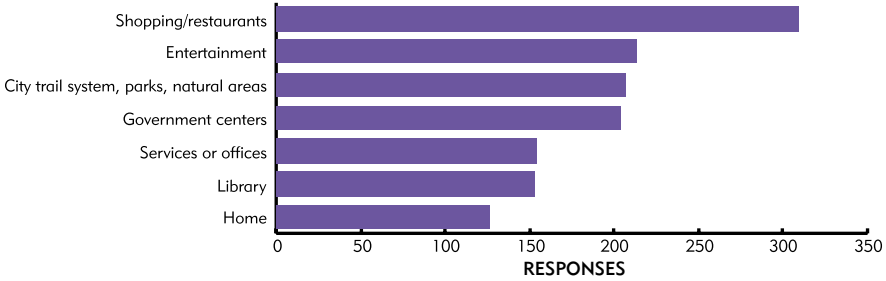
Operationally, many of the respondents commented on local and express type transit service, with the local service having many stops and the express service having just a few stops.

General consensus from the questionnaire was that pedestrians, bikers, and commuters should all make use of the Corridor, but they should be safely separated from one another.

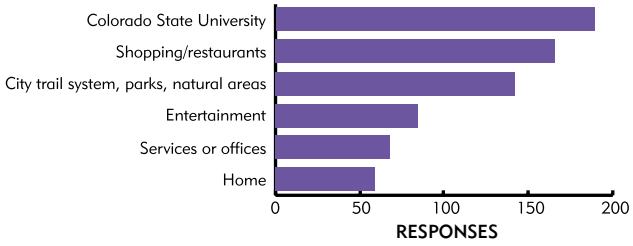
How would you use the Mason Street Transportation Corridor?



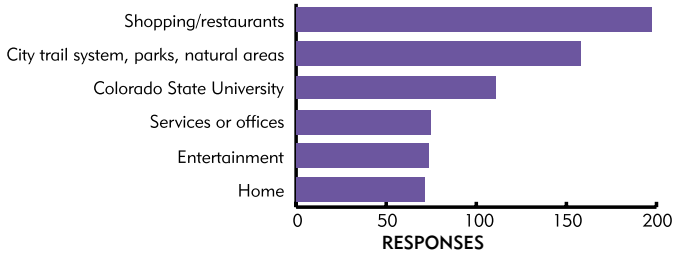
Where do you want to go? (Downtown Area)



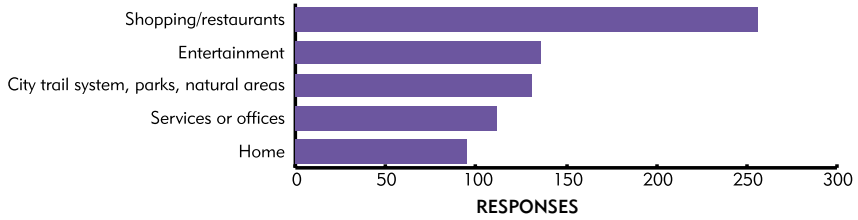
Where do you want to go? (Laurel to Prospect)



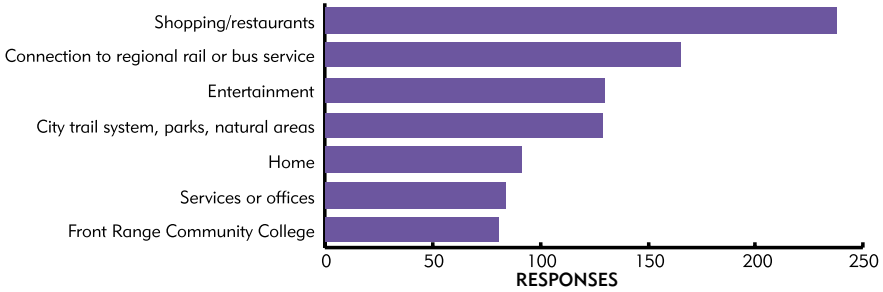
Where do you want to go? (Prospect to Drake)



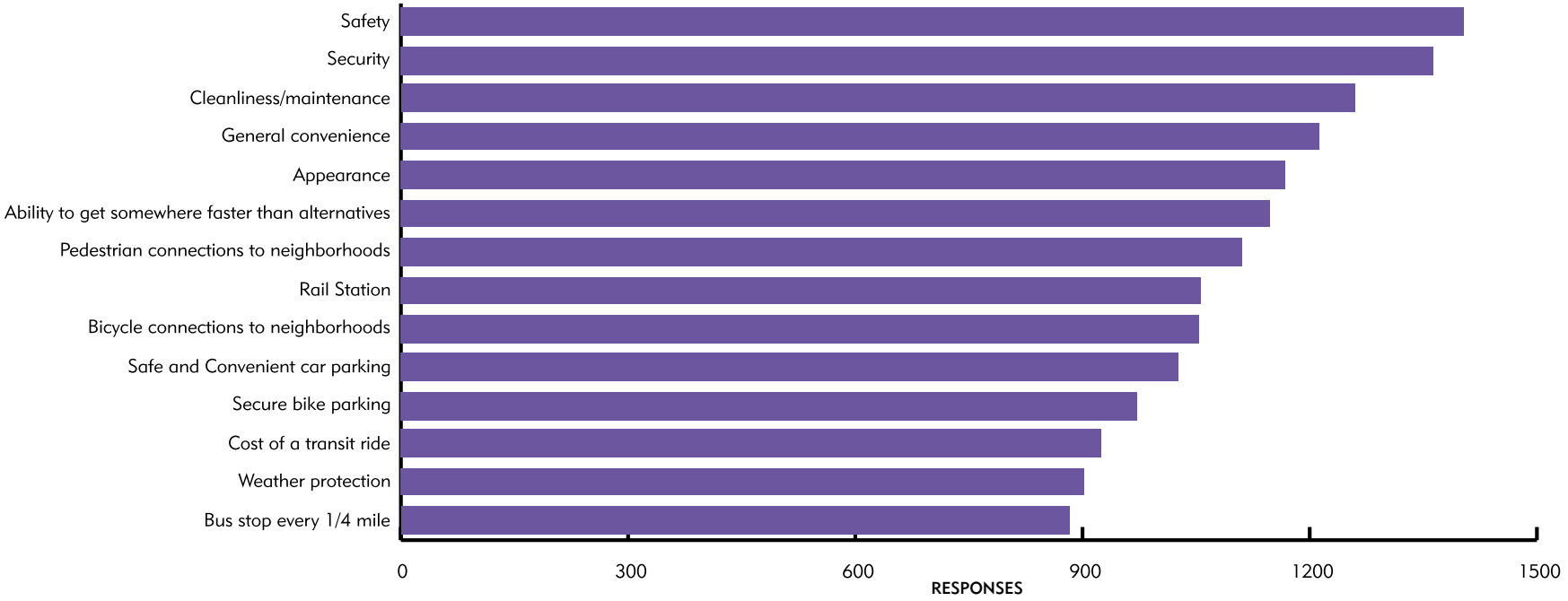
Where do you want to go? (Drake to Horsetooth)



Where do you want to go? (Horsetooth to Harmony)



What do you want it to be like?



Corridor Plan Issues and Opportunities

While the development of a Mason Street Transportation Corridor represents an excellent opportunity to improve mobility throughout the city's urban core, the community raised a number of issues regarding the corridor development. A clear understanding of these issues and an understanding of the opportunities was an important prerequisite to the development of a conceptual plan for the corridor. The categories of issues raised included:

1. Transit Service and Location
2. Pedestrian Facilities and Connections
3. Design of Bicycle Facilities
4. BNSF Railway Operations
5. Automobile Interaction
6. Urban Design
7. Land Use Compatibility
8. Environmental Impacts
9. Projected Construction and Operating Costs

These issues were defined and responses prepared as part of the alternatives development process.

The BNSF Railroad and adjacent right-of-way offer a unique opportunity to integrate a linear transportation corridor with neighborhoods and businesses.

Transit Service and Location

Station Location and Spacing—*How many stations should be constructed, where should they be located, and how closely should they be spaced?*

Closely spaced stations can increase convenience, accessibility, and connections to existing neighborhoods and activity centers, but more stations and more transit stops slow down overall travel time.

Station Design—*What will the physical interface with the transit option look like?*

Entry to an elevated track, a train station platform, or a street level entrance to a bus or trolley option will each pose unique station design challenges and may influence the ease of access. The station design will need to accommodate seating, weather protection and have an aesthetic attraction for the Corridor.

Transit Travel Time—*Will a transit option for the corridor be faster than auto travel?*

Reduced transit travel time is likely to have a significant positive impact on use of and demand for the transit option.

Local and Regional Connections—*Can users connect to circulator transit service or a regional transit service?*

The availability of a connection to existing and future transit networks is likely to affect demand for transit in the Corridor since many transit riders will want to extend their trip beyond the corridor.

Reliable Technology—*Should transit solutions consider new technologies?*

Transit options that have been successfully implemented in similar cities and corridors utilize transit modes that offer proven technology to avoid risk both financially and operationally.

Physical Constraints—*Can the transit option physically work in the space available?*

Horizontal and vertical space requirements, grade separation requirements, turning radii, and right-of-way requirements for each option may dramatically affect the feasibility of a particular option. With a BNSF right-of-way of 100 feet, and a 15-foot easement required on one side and 20-foot easement on the other side, the window available is a corridor of 30 and 35 feet. Transit, bicycle, and pedestrian facilities can be accommodated within this corridor.

Frequency of Service—*What is the frequency of service—every 10 minutes, 15 minutes, 20 minutes?*

High frequency service is more attractive to users, but it also requires more demand to be cost effective. The alternatives analysis will need to balance the frequency with operating costs.

Expandability—*Is the transit option expandable or easily replaced with a higher capacity option if demand increases?*

The relationship between demand and attractiveness is complex and likely to change over time. A flexible and expandable option can better accommodate changes in demand over time.

Safety and Comfort—*Will the transit be safe, secure, and clean?*

The Corridor should provide for pedestrian continuity with adjacent activity centers.

Comfort and a perception of safety and security, both in the stations and in the train or bus, are frequently cited in a traveler's initial decision to use transit and will be an important element of the design for the Mason Street Transportation Corridor.

Pedestrian Facilities and Connections

Directness and Continuity—*Are there direct, continuous connections for pedestrians?*

Pedestrians are concerned about direct routes with minimal interruptions, both for safety and convenience. There are

Safe pedestrian street crossing with median refuge islands.

key connections that are not currently available that should be facilitated as part of this plan or a subsequent plan.

Convenience and Distance—*Do pedestrian pathways provide convenient, easy walking distance connections to surrounding neighborhoods and businesses?*

Pathways connecting the corridor to activity centers that are within easy walking distance are essential.

User Conflicts—*How do pedestrians interact with other users in the corridor?*

Separate paths minimize conflicts be-

tween users, especially between bicyclists and pedestrians, but they also require more space in the corridor.

Safety and Security—*Is the walking environment safe and secure?*

Pedestrians are concerned about both accidents with bicycles, transit and motor vehicles as well as criminal activity in the corridor. Safety can be addressed through a sound engineering design. Security is addressed through activity and design features such as lighting and line of sight visibility.

Places along the Corridor to park and lock bicycles.

Design of Bicycle Facilities

Travel Time—*Is the route faster for cyclists than other alternatives?*

Convenient access to the corridor and priority or grade separation at intersections will improve travel times for cyclists as compared to alternative routes, which are virtually nonexistent.

User Conflicts—*How will cyclists interact with pedestrians and transit in the corridor?*

Separate paths will allow for faster travel times and minimize conflicts with pedestrians and other users.

Intersection Priority—*Will cyclists be given priority at intersections?*

The type of interaction with motor vehicles at intersections, especially east-west traffic, will affect both safety and travel time in the corridor for cyclists. Grade separations at the major arterials will both improve bicycle safety and not cause any delay for east-west vehicular traffic. These types of under crossings also have a higher cost than conventional signalized intersection crossings.

Activity nodes along the Corridor will serve multiple transportation modes.

Facility Design—*Are the bicycle facilities appropriate for both inexperienced and experienced cyclists?*

Facilities should be designed with both experienced commuter cyclists as well as younger, less experienced, and recreational cyclists in mind.

Safety—*Is the cycling environment safe?*

Cyclists are concerned about accidents with transit, motor vehicles, and pedestrians in the corridor. Separation of bicycle trails from arterial crossings and separation between bicycle trails and pedestrian trails will improve safety and reduce conflict.

BNSF Railway Operations

Interface Design—*Is the interface between the railroad with pedestrians, bicyclists and autos safe and attractive?*

Railroad crossings, grade separation, buffers, and barriers will be important issues as pedestrian, bicycle, and auto use increases in the corridor.

Relocation Options—*Could the trains be relocated?*

If the BNSF rail users could be relocated to another corridor, the cost, timing, and physical requirements would be well beyond the time frame of this corridor project. Even with potential relocation of the freight service, long term commuter rail service requires integration between local transit, bicycle and pedestrian needs, and rail operations.

Railroad, a part of Fort Collins.

The railroad affects east-west travel.

User Interaction—*How will pedestrians and cyclists interact with railroad uses?*

The location and design of pedestrian and bicycle facilities relative to the railroad tracks will influence travel time, convenience, and attractiveness in the corridor. Barriers separating bicycles and pedestrians from rail operations will be important, as well as consolidation of safe east-west track crossings.

Automobile Interaction

East-West Crossings—*How will the corridor affect east-west crossings?*

At-grade pedestrian and bicycle crossings could lead to increased delays for motorists as they require a significant amount of signal time to cross these arterials. Grade separations for bicycles and pedestrians will eliminate the conflict with east-west arterial traffic. At-grade transit crossings, with minimal frequency and duration, will have a minor impact on east-west arterial travel.

Parking—*What kind of parking will be provided in the corridor?*

The amounts of parking, orientation, and space requirements are important design factors. In general, Park-N-Ride opportunities along the corridor to facilitate a wide range of users will be important for the overall plan.

Reduced Congestion—*Will the project actually reduce congestion in the corridor?*

Congestion currently exists along the College Avenue (US 287) corridor, in which there are already trips that divert to other north-south parallel routes such as Lemay Avenue and Shields Street. As the City of Fort Collins grows, the demand for the College Avenue corridor will further increase. Given that the capacity of College Avenue is finite, increased traffic will continue to divert to Lemay Avenue and Shields Street. With mobility alternatives including transit, bicycle, and pedestrian, any trips that will likely divert from automobiles currently utilizing the College Avenue corridor will likely be replaced by trips that have or will divert to Lemay Avenue and Shields Street.

In conclusion, actual reduction in traffic and congestion along College will likely not occur. However, overall reduction in congestion along the parallel routes of Lemay Avenue and Shields Street will occur. This improvement will also likely reduce overall travel time and vehicle miles of travel along congested routes.

Level of Service—*How will the corridor impact levels of service on the existing street network?*

Visually interesting and aesthetic streetscapes create community image.

Increased pedestrian, bicycle, and transit use could improve automobile levels of service on the existing street network by replacing auto trips with other modes of travel. This reduction will likely be greater along the parallel routes of Lemay Avenue and Shields Street as compared to College Avenue.

Reduced Vehicle Miles Traveled—*Do the corridor improvements reduce Vehicle Miles Traveled (VMT) in the city?*

The corridor and associated uses should allow for more trips that do not require use of a motor vehicle and reduce vehicle miles of travel. While actual VMT is not likely to decrease given the magnitude of projected growth, the rate of growth may be slowed.

Travel Time—*Will the project reduce travel time for automobiles in the corridor?*

If congestion is reduced as some auto trips are replaced by walking, biking and transit trips, the travel time along the corridor for automobiles could be improved.

The Mason Street Transportation Corridor should integrate with new development such as the recently completed Larimer County Justice Center.

Urban Design

Attractive Design—*Is the design and landscaping attractive and inviting?*

A comfortable and enjoyable environment with attractive public spaces is especially important to pedestrians.

Historic Preservation—*Will historic structures be preserved and will new structures respect historic character?*

The Mason Street Transportation Corridor should not just avoid impacts to historic structures, but be designed in a way to emphasize their importance.

Transitions between Travel Modes—*How will the travel modes and their associated facilities connect and interact?*

Convenient transitions to and from walking, biking, transit, and automobile modes are essential design elements.

Visual Impacts—*What kind of visual*

impacts will the transit choice have?

Elevated structures and electric lines may obstruct mountain views. Other transit choices may be particularly appealing or unobtrusive.

Social Interaction—*Does the design encourage walking and social interaction?*

Inviting gateway areas and comfortable, safe public spaces improve the pedestrian environment and allow for social interaction.

Corridor Alignment—*Will the corridor follow the Railroad for the entire corridor or will some facilities branch off in areas to CSU or the Foothills Fashion Mall?*

Mason Street serves multiple transportation modes, such as automobiles at the recently completed Civic Center Parking Structure

Directness, convenience, and property acquisition requirements must all be balanced to select the best alignment in the corridor.

Land Use Compatibility

Business and Residential Impacts—*How will the corridor impact adjacent businesses and residential areas?*

Impacts to property values and increased or decreased business exposure and the associated economic impacts are significant concerns of adjacent property owners. Historically, property values significantly increase because of the added benefits of bicycle, pedestrian, and transit mobility.

Compatibility of Uses—*Are land uses in the corridor compatible with adjacent neighborhoods?*

Residents are concerned that land uses in the corridor may not be compatible with the character of their neighborhoods. The bicycle/pedestrian components will have a lesser impact than the transit element. However the transit component will be nonpolluting quiet buses designed to not intrude on the environment.

Connections to Activity Centers—*How will the corridor provide connections to activity centers and districts?*

Direct, convenient connections to activity centers, the downtown district, community commercial districts, employment districts, the campus district, industrial districts, and the commercial corridor district along Mason Street are essential.

Transit Oriented Development—*Are there areas well suited to transit oriented development or redevelopment?*

Orienting new development and redevelopment in the corridor to the transit service could improve access to the cor-

The visual interest and aesthetics of the Larimer County Justice Center along the Corridor.

ridor and increase transit use in the corridor. There are a number of infill sites along the corridor as well as redevelopment opportunities.

Density Changes—*How will density along the corridor be addressed?*

Higher density development is typically required for some forms of transit, but some existing neighborhoods may resist policy changes to increase residential density along the corridor. On the other hand, it is possible to promote a transitional transit system that begins with one technology and service frequency that can later be upgraded to a higher technology with additional capacity, such as from bus to light rail.

Policy Changes—*Are changes to the zoning code appropriate?*

The City of Fort Collins Structure Plan and Land Use Code could be amended to support appropriate land uses in the corridor. This intensification could be done at little or no cost to the City, yet yield higher tax returns through increased intensity.

Environmental Impacts

Air Quality Improvements—*How will air quality be affected by the transit choice and reduced auto use in the corridor?*

The emissions reduction from decreased auto use and any air quality impacts associated with the transit mode need to be examined. Intuitively, reduced vehicle miles traveled will reduce emissions as compared to a no build alternative.

The north end of the Corridor connects with Lee Martinez Park.

Development continues along the Corridor.

Noise Levels—*How much noise will be associated with the transit choice?*

Current new bus technologies that utilize electric, compressed natural gas or liquefied natural gas are extremely noise free and will not have an impact on adjacent development.

Vegetation and Wildlife Impacts – *How will the development of the corridor impact wildlife and vegetation?*

Sensitivity to other species in the corridor and then habitat requirements, both in design and construction, is an important consideration.

Projected Construction and Operating Costs

Affordability—*Is the project affordable in terms of capital and operating costs?*

The design and construction costs associated with the Mason Street Transportation Corridor might qualify for New Start funding through the Federal Transit Agency. The current Building Community Choices could provide the 20 percent local match required for the FTA funding. Operating costs are the responsibility of the local jurisdictions and need to be examined when exploring alter-

native transit modes.

Property Acquisition—*How much will property acquisitions cost?*

Acquisition costs should be estimated in areas where private property must be acquired to construct the Corridor improvements. The projected need for property is minimal.

Transit Revenues—*What is the revenue potential of the transit choice?*

The fare prices and projected ridership should be examined to establish each transit alternative's revenue potential.

Financing Structure—*Who pays for the project, how, and when?*

New revenue sources such as Federal Transit Agency New Start funds can be complemented by local public and private funding options.

Related Plans and Policies—*How will the improvements proposed for the Mason Street Transportation Corridor relate to other local and regional plans and policies?*

- *Air Quality Policy Plan*—summarizes pertinent facts about air quality, establishes a community vision and measurable objectives, and sets forth specific policies to direct City programs and actions (1993). In general, the alternative mode opportunities as proposed by the Mason Street Transportation Corridor will help contribute to reduced growth in vehicle miles of travel.
- *Downtown Civic Center Master Plan*—framework for future development in the 12-block Civic Center with zoning, acquisition, phasing, funding, and civic use recommendations (1996). This plan envisioned a multi-modal Mason Street Transportation Corridor to serve projected public and private sector growth in the downtown area.
- *Fort Collins Bicycle Program Plan*—guides development of a City bikeway program and facilities (1995). This plan specifically identifies the BNSF Railway corridor as a north-south bike route from downtown to south of Harmony Road.
- *Fort Collins Congestion Management Plan*—land use, transportation and air quality recommendations, with identification of activity centers (1995). Mason Street Transportation Corridor complements the Congestion Management Plan for alternative transportation modes with increased alternative mode levels of service as a trade-off to increased automobile congestion.
- *Master Street Plan*—designates the alignment and functional classification of major streets planned for construction within and in close proximity to the Urban Growth Area (1996). The Master Street Plan typical cross sections define bicycle facilities for all arterials. These facilities are necessary to accommodate east-west connections to the Mason Street Transportation Corridor.
- *Pedestrian Plan*—policies, design standards and guidelines for pedestrian facilities (1996). The Mason Street Transportation Corridor will provide for significant pedestrian linkages to provide continuity and directness per the Pedestrian Plan.
- *North Front Range Transportation Plan*—travel demand analysis, goals and objectives, including bicycle, transit, roadway, aviation, and rail systems. The Mason Street Transportation Corridor is included in the current Regional Transportation Plan. The Mason Street Transportation Corridor directly reflects the goal of the North Front Range Transportation Plan to reduce vehicle miles traveled and divert trips to alternative modes.
- *North Front Range Transportation Demand Management Program*—focuses on public and private strategies to reduce vehicle miles traveled throughout the North Front Range (1995). The direct benefit of the Mason Street Transportation Corridor is to provide the transit, bicycle, and pedestrian infrastructure to accommodate future diversion of trips to alternative modes.

New City building bring jobs and customers to downtown, many along the Corridor.

Design Elements and Alternatives Development

During review of comments and ideas received at the Open House, Workshops, and Lead Team Meetings, various alternative design categories or elements began to stand out. When looking at the permutations and combinations of these design elements, the theoretical potential number of alternatives can become quite large. It was, therefore, important to begin with a set of three alternatives that cover the majority of design elements.

Design Elements

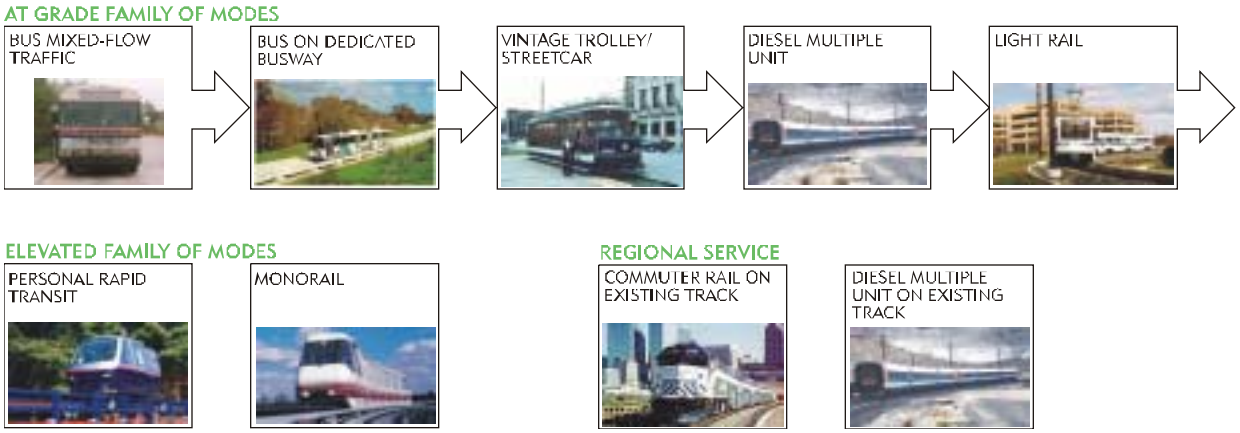
Four design elements were identified. The first design element is **transit mode,** such as rubber-tire bus, light rail, and commuter rail. The second design element was referred to as **lateral alignment**, whether the transit travels along the east side of the existing railroad, the west side or both sides. The third design element was whether this alternative assumes **at-grade or grade separated crossings** for bicycles, pedestrians, and transit at the major intersections. The fourth design element examined was **transit alignment deviations/connections**, which addresses whether the route remains along the Mason Street Transportation Corridor or deviates to other destinations.

Transit Modes

It was not necessary to examine all transit alternatives but rather examine a family of transit alternative modes that are at-grade or elevated. All of the at-grade alternatives, whether rubber-tire or steel wheel, have similar operating widths. They also can be expanded from one technology to the next. As an example, one could take existing bus service that travels along College Avenue and reroute that service to a dedicated busway. Later, tracks could be laid along the dedicated busway that would permit operation of vintage streetcars, which then could be converted to Diesel Multiple Unit (DMU) rail and culminate with light rail.

A second family of transit modes is elevated transit. Primarily, this includes technologies such as Personal Rapid Transit (PRT) and monorails; however, buses could also operate on an elevated structure. Whereas these alternatives benefit from being separated from at-grade conflicts, they result in a physical presence.

The third family of transit modes is regional service, either commuter rail or DMU. Alternative development should, at worst, not preclude regional transit opportunities and, instead, provide a system of bicycle, pedestrian, transit, and automobile connections to support regional rail along this Corridor.

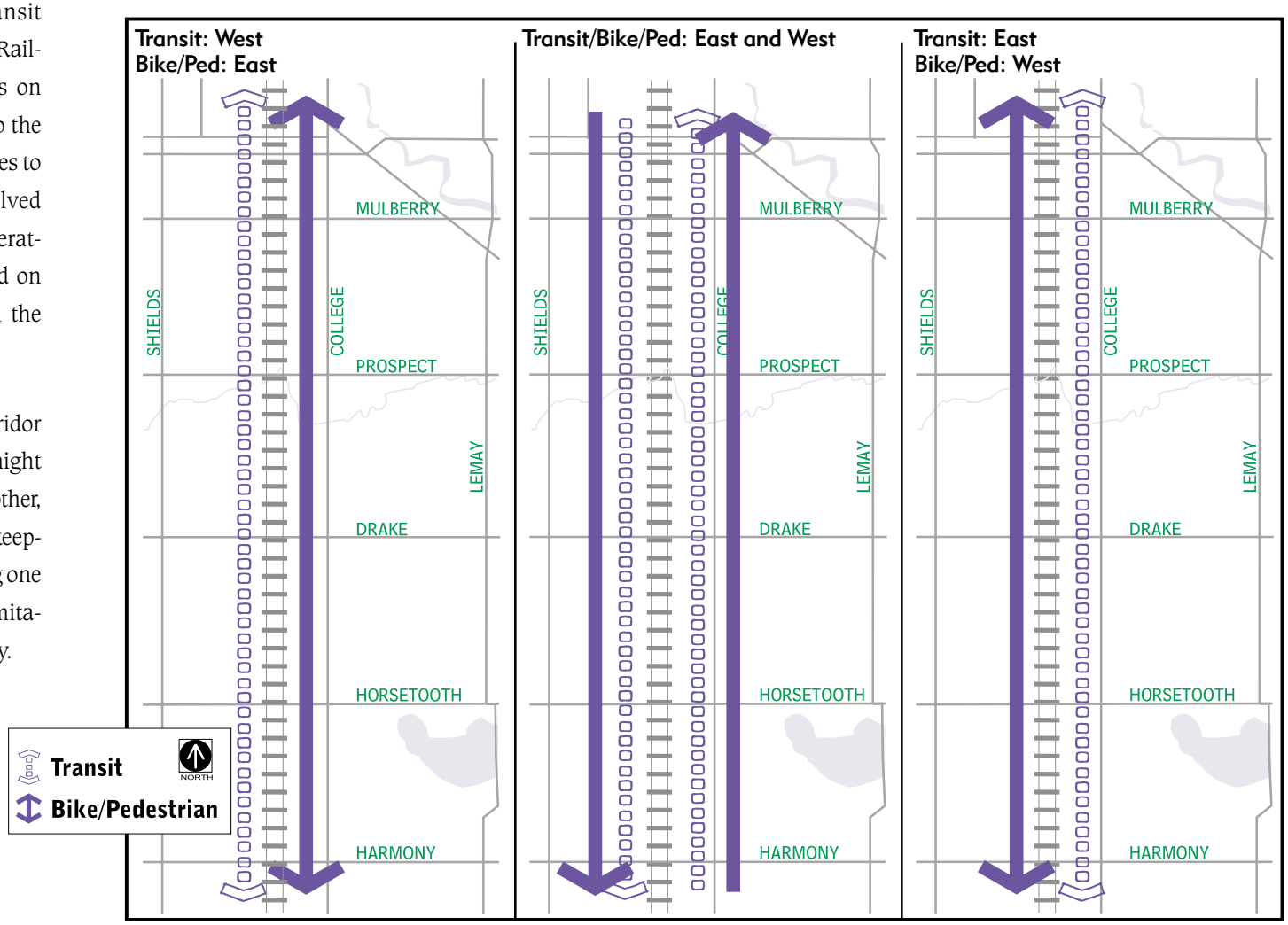


Lateral Alignment

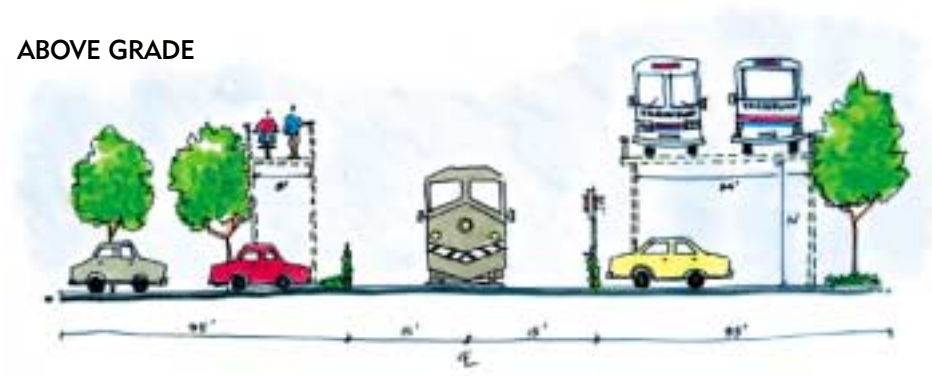
When reviewing alternative concepts developed at the design workshops, options ranged from placing transit along the east side of the BNSF Railway, and bicycles and pedestrians on the west, to reversing the transit to the west, and bicycle/pedestrian facilities to the east. Other alternatives involved transit, bicycle and pedestrians operating on both sides (i.e., northbound on the east side and southbound on the west side).

Whereas each segment of the Corridor has different characteristics that might favor one lateral alignment over another, there are some practicalities for keeping the rail transit alignments along one side or another because of the limitations of crossing the BNSF Railway.

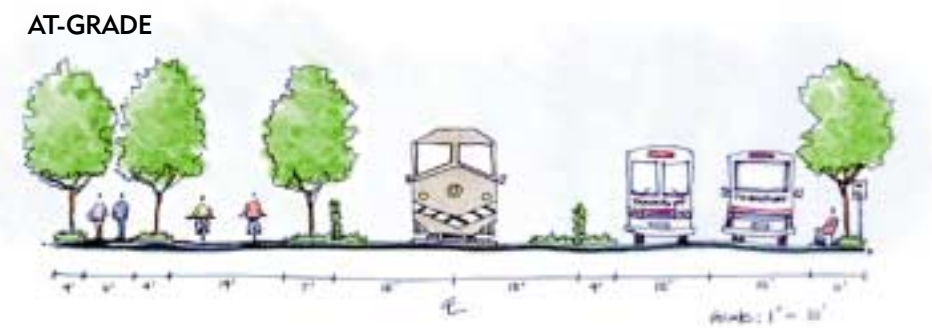
The development patterns and street network along each segment have a major influence on the development of the alternatives. As an example, there is limited right-of-way within the CSU campus that may preclude one lateral alignment or another. In the downtown area, with a one-way northbound Mason Street, opportunities to provide southbound transit may not be practical and might require a southbound return via Howes Street or College Avenue.



ABOVE GRADE



AT-GRADE



BELOW GRADE

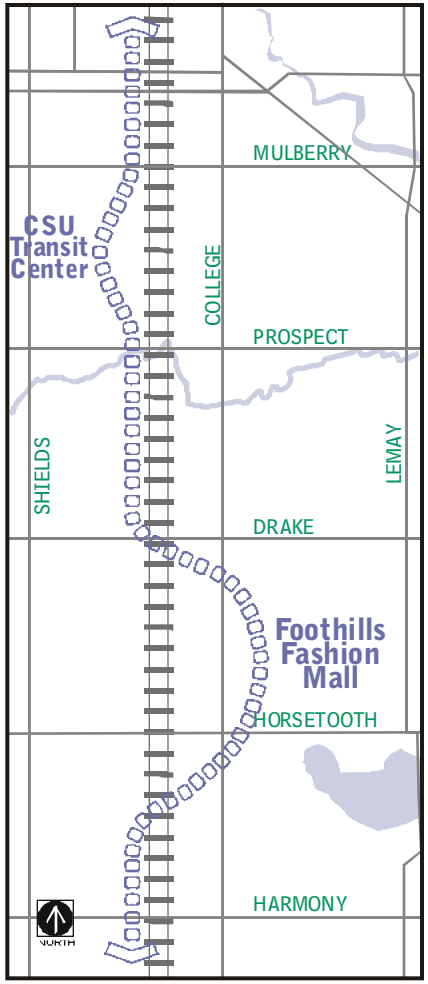
Intersection Crossings

In order to provide safety, minimize travel times, and create a corridor connection from Cherry Street to Harmony Road, the design of the street crossings at Prospect, Drake, Horsetooth, and Harmony were determined to be extremely important. Conventional at-grade street crossings will need to be provided by some form of signal protection. Because of parallel streets, the BNSF Railway crossing safety gates, and the high volumes of east-west traffic, signalized grade crossings might take away green time from the east-west traffic and increase congestion and delay.

One option for the at-grade crossings is to elevate the bicycle/pedestrian paths and/or transit above the cross street. An alternative would be to provide an under crossing. A variation of the under crossing was also examined which would lower the east-west road under the bicycle, pedestrian, and transit corridors. Whereas the advantage of this alternative was to remove the east-west automobile conflict with the railroad, it was not physically possible to lower the street the necessary 17 feet without severe access and intersection impacts and was subsequently not proposed for further detailed analysis.

Transit Alignment Deviations/Connections

When examining transit routing, two general concepts were explored. The first was a line-haul service, where transit travels back and forth along the Corridor. East-west transit feeder service would tie into the north-south Mason Street Transportation Corridor at strategic transit stations/stops. This would require a transfer time that affects mode choice when considering overall travel time. An option would be to have transit deviate from the Corridor and tie into key destinations, such as the CSU Transit Center or the Foothills Fashion Mall, to eliminate the transfer time penalty between bus routes. The downside is that overall travel time along the Corridor would increase to accommodate the route deviations.



A possible transit alignment option would be to have transit deviate from the Corridor and tie into key destinations such as the CSU Transit Center or the Foothills Fashion Mall.

Alternatives Development

When considering three transit mode families, three lateral alignments, four treatments for intersection crossings, and line-haul versus transit alignment deviations, there are upwards of 50 alternative combinations. When considering options may vary within the six segments, this list of alternatives jumps to 300 alternatives. Recognizing that there are five major street crossings to address and five segments along the Corridor with different urban design and street network characteristics, the possible list of alternatives is in the thousands.

In review of the design elements, it was agreed that only transit technologies that were in current revenue service should be considered. The two transit options that were identified were some form of rubber tire bus rapid transit and light rail, either electric or diesel multiple unit.

The lateral alignment selected for all alternatives was to have the bicycle and pedestrian trails located on the west side of the railroad and the transit along the east side. This decision was based on a number of factors:

- The bicycle and pedestrian trails were deemed to be less obtrusive to the neighborhoods on the west side of the tracks as compared to transit.
- Transit stops along the east side of the railroad would better serve the higher density commercial and office uses also on the east side.
- The west side of the BNSF Railway has greater opportunities for expanding the alignment Corridor into undeveloped open space. Bicycle and pedestrian routes would better take advantage of this opportunity of expanded alignment through minor meandering of trails, bicycle and pedestrian trail separation, and landscaping. This additional alignment was not critical for the transit operation.
- One extremely narrow segment of the Corridor adjacent to CSU's power plant would require transit to operate on the east side.

In order to minimize conflict between pedestrian and bicycles from automobile traffic along the arterials, all alternatives have proposed under-crossings of the bicycle and pedestrian trails under Prospect, Drake, Horsetooth, and Harmony. Two transit options were selected, at-grade and elevated.

In review of basic transit alignment routings, the concept of route deviation was identified as counter productive to rapid line-haul service along the Mason Street Transportation Corridor. Rather than route deviations, connecting shuttle service, if necessary, could provide these connections.

Ultimately three alternatives were selected. The first alternative was at-grade bus rapid transit along the east side of the BNSF Railroad with bicycle and pedestrian trails along the west side. The second alternative replaced the bus rapid transit with light rail. The third alternative considered an elevated transitway with a guided busway.

These alternatives were presented to the Fort Collins City Council and approved for subsequent alternatives evaluation.

Alternatives Evaluation

In October 1999, the Fort Collins City Council directed the project team to analyze the three specific transit alternatives so that Council could then make an informed choice as to which alternative should be selected for preparing the conceptual design.

Three evaluation categories were selected; Performance, Cost Effectiveness and Impacts. These categories comprised detailed criteria as follows:

Performance

1. Person-Carrying Capacity
2. Transit Ridership
3. Mobility
4. Vehicle Miles Traveled
5. East-West Arterial Travel Time
6. Automobile/Transit Corridor Travel Time

Cost-Effectiveness

7. Capital Costs
8. Total Annualized Costs
9. Annualized Costs per Transit User

Impacts

10. Air Quality
11. Residential and Business Displacements
12. Noise
13. Visual
14. Lighting

In addition to developing measurements for each of the above criterion, it became evident that there are some criteria that are more important than others. In order to address the relative importance of criteria, the Mason Street Lead Team rated each criterion from one to ten, with one being the least important and ten being the most important. The result of this weighting is presented in the following table.

The following section presents the alternatives evaluation for each of the evaluation criterion. For each section, the criterion is defined. For each criterion, the measurement is specified as to whether it is measured by a qualitative

Mason Street Lead Team Criterion Weighting			
Categories	**Criterion Weight**		
Performance	**Minimum**	**Maximum**	**Average**
1. Person-Carrying Capacity	4	10	7.1
2. Transit Ridership	4	10	6.8
3. Mobility	4	9	7.4
4. Vehicle Miles Traveled	4	9	6.5
5. East/West Arterial Travel Time	3	10	6.4
6. Automobile/Transit Corridor Travel Time	5	10	7.9
Cost-Effectiveness	**Minimum**	**Maximum**	**Average**
7. Capital Costs	3	10	7.7
8. Total Annualized Costs	3	10	8.2
9. Annualized Cost per Transit User	4	10	7.8
Impacts	**Minimum**	**Maximum**	**Average**
10. Air Quality	3	10	7.6
11. Residential and Business Displacements	2	10	6.3
12. Noise	3	10	6.9
13. Visual	6	10	7.9
14. Lighting	3	9	5.8

or quantitative measurement. In addition, the source or method of measurement is specified along with the specified criterion from the Lead Team.

For each criterion, the support measurements and results are presented for each of the alternatives. In addition, a magnitude rating was determined for quantitatively normalizing each of the criteria to a conventional measurement, where the top alternative scored a 1.00, with the remaining alternatives being scored a relative portion. The overall criterion score is simply the criterion rating times the criterion weight.

The results of the evaluation are presented in the following table and graphics.

Evaluation Criteria 1			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Person-Carrying Capacity Persons per hour that can be served with the proposed alternative mode, alignment, and operating plan, in peak hour peak direction.	Quantitative	Number of vehicles per hour times normal vehicle capacity	7.1

	Bus	Rail	Elevated
Vehicle Per Peak Hour	6	4	6
Persons Per Vehicle	40	160	40
Total Carrying Capacity	240	640	240
Rating	0.38	1.00	0.38
Score	**2.69**	**7.09**	**2.69**

Rail offers a distinct advantage for being able to carry the highest volume of transit ridership. However, with an increased number of buses, the total carrying capacity for the bus and elevated alternative could be increased.

Evaluation Criteria 2			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Transit Ridership Number of people daily on the facility in both directions.	Quantitative	Forecast daily transit ridership from model	6.8

	Bus	Rail	Elevated
Annual Ridership	793,000	702,000	854,000
Rating	0.93	0.82	1.00
Score	**6.34**	**5.59**	**6.82**

Ridership is a function of overall speed and frequency. It is for this reason that the elevated bus alternative fairs the best, followed by the at-grade busway. With less frequency, the rail alternative rates the worst.

Evaluation Criteria 3			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Mobility Total daily person miles of travel within the corridor.	Quantitative	From model determine total daily Person Miles of Travel within the corridor compared to baseline	7.4

Person Miles of Travel within Corridor Compared to 2020 Baseline	Bus	Rail	Elevated
Automobile	-500	-300	-500
Transit	+4,300	+3,500	+4,500
Total	3,800	3,200	4,000
Rating	0.95	0.80	1.00
Score	**7.00**	**5.89**	**7.36**

Based on the model results, person vehicle miles traveled will decrease within the Corridor. This is offset with increased transit ridership vehicle miles traveled, with the highest increase for the elevated bus, followed by the at-grade busway, and the rail alternative.

Evaluation Criteria 4			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Vehicle Miles Traveled A calculation of the daily vehicle miles traveled (VMT) on the systems roadway network for each alternative vs. baseline.	Quantitative	From model, determine daily VMT for baseline vs. resulting VMT as a result of each alternative	6.5

	Bus	Rail	Elevated
Vehicle Miles Traveled Compared to 2020 Baseline	-3,000	-2,000	-3,200
Rating	0.94	0.63	1.00
Score	**7.00**	**5.89**	**7.36**

With the introduction of transit within the Mason Street Transportation Corridor, overall vehicle miles of travel will decrease. The reduction is commensurate with how much diversion occurs to transit. The results of the analysis determined that an elevated busway would yield the highest diversion, followed by the at-grade busway and rail.

Evaluation Criteria 5			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
East/West Arterial Travel Time From model and intersection level of service analysis, determine increased east-west arterial travel time as a result of improvement vs. baseline.	Quantitative	Sum of total east-west delay along east-west arterials of Harmony, Horsetooth, Drake, and Prospect	6.4

	Baseline 2020	Bus	Rail	Elevated
Total East/West Travel Time*	911	882	911	916
Rating	--	0.97	0.96	1.00
Score	--	**6.17**	**6.11**	**6.36**

*Prospect, Drake, Horsetooth, and Harmony

As presented, the elevated busway will have no impacts to the travel on east-west automobile travel along the arterials. With at-grade bus and rail signal interruption being minimized to every six to ten minutes and the signal cycle length being of short duration, the impacts to arterials will be very minimal.

Evaluation Criteria 6			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Automobile/Transit Corridor Travel Time From model, total door-to-door travel time by mode for major origin/destination pairs.	Quantitative	Calculate for each alternative from model	7.9

	Bus	Rail	Elevated
Door to Door Travel Time* Automobile	19	19	19
Door to Door Travel Time* Transit	13	13	12
Travel Time Compared to Baseline	-6	-6	-7
Rating	0.86	0.86	1.00
Score	**6.80**	**6.80**	**7.91**

*Harmony to Laporte in Minutes

In order to attract automobile drivers and passengers, the transit travel time must be competitive with the automobile. All transit modes offer faster travel times when provided with separate corridors as compared to the congested College Avenue corridor. The elevated busway, without any cross street interference, provides the overall fastest travel times.

Evaluation Criteria 7			
Criterion	**Qualitattive or Quantitative**	**Measures**	**Weight**
Capital Costs A determination of the total capital costs of each alternative vs. baseline.	Quantitative	Total construction costs including capital cost for vehicles, stations, park-n-ride, and maintenance facilities	7.7

	Bus	Rail	Elevated
Networks	40-50	70-80	250-270
Rolling Stock	3-3.5	15-18	10-15
Station Stops	1-2	2-3	8-10
Park-N-Ride	3-4	3-4	3-4
Maintenance Facility	1-2	10-15	4-6
Total	48-60	100-120	275-305
Rating	1.00	0.49	0.18
Score	**7.73**	**3.79**	**1.39**

The capital costs include the transit network, vehicles, stations, park-n-ride facilities, and maintenance facilities. As presented in the above table, different alternatives have different cost impacts. The overall range of costs is quite extreme, with at-grade bus being in the range of $50M, rail at $100M, and elevated busway being the highest at $300M.

Evaluation Criteria 8			
Criterion	**Qualitattve or Quantitative**	**Measures**	**Weight**
Total Annualized Costs Determined by calculating annual operations and maintenance (O&M) costs for each alternative and adding annualized capital costs. Capital costs will be annualized according to standard FTA formulas, with economic lives of individual components as follows: - roadway construction elements: 30 years - rail construction elements: 50 years - buses: 12 years - rail vehicles: 25 years	Quantitative	Calculation of total annualized costs for each alternative	8.2

	Bus	Rail	Elevated
Annualized Capital Costs	2.0	2.9	6.4
Annual Operating and Maintenance	0.40	0.37	0.40
Total Annualized	2.4	3.3	6.8
Rating	1.00	0.73	0.35
Score	**8.18**	**5.97**	**2.86**

The annualized costs address both the capital amortization costs for the construction of the system plus the annual operating costs. Whereas the rail transit has a slightly lower annual operating and maintenance cost, the higher construction costs yield a less favorable alternative as compared to the at-grade busway. With the higher elevated cost, the elevated busway is a distant third.

Evaluation Criteria 9			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Annualized Cost per Transit User A computation of the total annualized O&M and capital cost of each improvement per total number of transit users of the facility.	Quantitative	Divide annualized O&M and capital costs of alternative by annualized number of transit users	7.8

	Bus	Rail	Elevated
Total Annualized Ridership	793,000	702,000	854,000
Total Annualized Costs ($1 M)	2.4	3.3	6.8
Cost per Rider (Dollars)	3.03	4.70	7.96
Rating	1.00	0.64	0.35
Score	**7.82**	**5.00**	**2.74**

The at-grade busway is a clear winner when examining annualized costs per transit user. This results from the higher ridership resulting from higher frequency of service, coupled with lower annualized capital and operating costs.

Evaluation Criteria 10			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Air Quality Alternative impacts to the Fort Collins Basin compared to baseline.	Qualitative	From model, based on changes in system wide VMT and other relevant criteria to calculate emissions resulting from each alternative.	7.6

	1 --	2 -	3 0	4 +	5 ++	Average	Rating	Score
Bus				⬭		4.00	0.89	6.80
Rail				⬭		4.00	0.89	6.80
Elevated					⬭	4.50	1.00	7.64

All three alternatives will provide an improvement in air quality compared to the no project alternative, as they will reduce vehicle miles traveled of automobiles. The elevated transit has a slight advantage, as transit would have no impact to arterial east-west travel.

Evaluation Criteria 11			
Criterion	**Qualitative or Quantitative**	**Measures**	**Weight**
Residential and Business Displacements	Quantitative	- Number of homes displaced - Number of businesses displaced	6.3

	Bus	Rail	Elevated
Homes Displaced	0	0	0
Business Displaced	0	0	0
Rating	1.0	1.0	1.0
Score	**6.27**	**6.27**	**6.27**

The overall Mason Street Transportation Corridor can be constructed without loss of any homes or businesses, regardless of alternative.

Evaluation Criteria 12								
Criterion					Qualitative or Quantitative	Measures		Weight
Noise					Qualitative	Federal Transit Administration (FTA) Impact Criterion		6.9
	1 --	2 -	3 0	4 +	5 ++	Average	Rating	Score
Bus						3.0	1.0	6.91
Rail						3.0	1.0	6.91
Elevated						2.0	0.67	4.63

Noise is not anticipated to be a major issue with any of the alternatives as the technology proposed for all are electric or hybrid propulsion systems. The elevated alternative might have a slightly greater impact.

Evaluation Criteria 13								
Criterion					Qualitative or Quantitative	Measures		Weight
Visual					Qualitative	Visual amenity or impact to neighborhood and community.		7.9
	1 --	2 -	3 0	4 +	5 ++	Average	Rating	Score
Bus						4.5	1.0	7.91
Rail						4.0	0.89	7.04
Elevated						2.0	0.44	3.48

A major objective of the Mason Street Transportation Corridor Plan is to improve the overall visual character of the Corridor, which would result in a positive experience. With the electric catenaries for the light rail alternative, the positive visual benefit might be slightly reduced. With the elevated structure traversing the entire Corridor length, a negative visual appearance would result.

Evaluation Criteria 14			
Criterion	Qualitative or Quantitative	Measures	Weight
Lighting	Qualitative	Benefits or impacts of alternative lighting on adjacent developments	5.8

	1 --	2 -	3 0	4 +	5 ++	Average	Rating	Score
Bus						3.0	1.0	5.82
Rail						3.0	1.0	5.82
Elevated						2.0	0.67	3.90

Lighting will not be an impact to the Corridor. Lighting will be limited to station lighting along the east side of the railroad, which has been identified by the adjacent businesses as a plus from a security perspective. The low lighting along the bicycle and pedestrian trails will be designed to minimize impacts to the adjacent residential areas. The elevated structure might cast a greater impact onto adjacent residences.

The results of the evaluation are presented in the following table. As can be seen, the at-grade busway was a clear winner when examining all aspects of performance, cost-effectiveness, and impacts.

On April 4, 2000, the three alternatives were presented to the Fort Collins City Council. They concurred unanimously to proceed with the development of the conceptual and action plans for the busway alternative.

The guidance of the City Council also included adding flexibility to the design so that possible future conversion to light rail could be permitted. Maintaining bicycle and pedestrian safety was also a high point, as well as connecting to the adjacent neighborhoods and businesses.

Alternatives Evaluation Summary			
Categories	Bus	Rail	Elevated
Performance			
1. Project Person-Carrying Capacity	2.69	7.09	2.69
2. Transit Ridership	6.34	5.59	6.82
3. Mobility	7.00	5.89	7.36
4. Vehicle Miles Traveled	6.15	4.12	6.55
5. East/West Arterial Travel Time	6.17	6.11	6.36
6. Automobile/Transit Corridor Travel Time	6.80	6.80	7.91
Cost-Effectiveness			
7. Capital Costs:	7.73	3.79	1.39
8. Total Annualized Costs	8.18	5.97	2.86
9. Annualized Cost per Transit User	7.82	5.00	2.74
Impacts			
10. Air Quality	6.80	6.80	7.64
11. Residential and Business Displacements	6.27	6.27	6.27
12. Noise	6.91	6.91	4.63
13. Visual	7.91	7.04	3.48
14. Lighting	5.82	5.82	3.90
Total	92.59	83.21	70.60

Conceptual Plan

Based on the Alternatives Evaluation, the Fort Collins City Council directed staff and consultants to develop a Mason Street Transportation Corridor conceptual improvement plan for the at-grade bus rapid transit alternative.

This plan is more than simply an alignment for transit, bicycles, and pedestrians. This plan is also a framework for future development in the Corridor. The plan will be self-supporting so that infrastructure improvements support targeted economic private investment in the corridor with development uses which utilize the transit, bicycle, and pedestrian opportunities.

The development of this conceptual improvement plan included a number of key issues, summarized as follows:

- Design Workshop
- Conceptual Plan Description
- Transit Centers, Station Stops and Design
- Bus Technology
- Mason/Howes Couplet
- Intersection Treatment
- Railroad Interface
- McClelland/Mason Connection
- Corridor Design Character
- Landscape Design
- Pedestrian/Bikeway Amenities
- Signage and Wayfinding
- Corridor Lighting System
- Right-of-Way Requirements
- Enhanced Development Areas
- Public Art Master Plan

Design Workshop

Prior to embarking on the development of a conceptual plan which addressed the above identified design and issues, the City staff and consultant team hosted a design workshop to invite the public to provide comments, suggestions, and ideas for inclusion in the design. The design workshop was well attended and brought a number of design recommendations and ideas for inclusion into the conceptual plan.

Citizens provide their comments, suggestions, and ideas to City staff and consultants at the design workshop.

Design Workshop Comments *May 2000*

Overall Corridor

- Financial considerations
- Function over aesthetics
- Don't jeopardize Phase II with extravagant design

Character

- Common signage "districts"
- Various themes throughout
- Baseline continuity-unified
- Public art

Stations/Stops

- Designed as a "place" beyond a transportation corridor
- Transportation corridor first…with nodes
- Make the corridor more of a destination
- Not a typical bus station, comfort and safety are very important
- More public-density, frontage, housing, and mixed use
- Business frontage is important
- Mid block crossings of tracks at activity areas
- Provide nice, leisurely places along the way
- Wall treatments-fences (liked the artist's work)

Design

- Permeability, especially for bikes/ pedestrians
- Maintain compatibility with existing historic architecture
- Provide pedestrian/bicycle grade separated crossings at major arterials
- Enhanced facilities at areas where feeder service feeds in-enclosure and other amenities
- Maximize places that have a start at becoming something-in between major intersections, "interludes" or destinations
- Support/promote infill development
- Bike lockers for transit center, security lockers
- Oppose idea of expanding McClelland to include cars
- Balance commuters vs. recreational cyclists, transportation is first
- Increase speed of trains from 15 to 25 mph to reduce east-west crossing conflicts

Transit Oriented Development

- Remove parking restrictions
- Streamline approval
- Match commuters and transportation

Transit Centers

- Bike lockers not just at arterial stops
- Needs to be easy to transfer between modes

Downtown

- Convert Mason/Howes couplet to a two-way operation and keep transit, bike and pedestrian activity and parallel parking on Mason
- Maintain compatibility with existing historic architecture
- Concrete track in downtown area to improve intersection crossings
- Ensure pedestrian access to businesses
- Improve Cherry Street bike/ pedestrian crossing with better integration with the park/trails.
- Utilize fountains/landscaping to enhance the aesthetic aspect focusing on Mason Street.
- Propose bike depot/corral at the old trolley building designed for bike parking
- Free park-n-ride facilities for transit/bike users, especially at the north end and south end
- Benches should be used for sitting while waiting for the train to cross

Colorado State University Including South Campus

- Alignments through CSU
- Grid transit system emphasizing corridor and campus
- Direct pedestrian connectivity from CSU Transit Center to corridor
- Shuttles to and from CSU Transit Center
- Separated bikes and pedestrians
- Grade separated at Prospect for bicycles and pedestrians

Design Character/Image

- Maintain compatibility with existing historic architecture on northeast corner of CSU by matching new structures and transit stops with existing structures

Park-n-Ride

- Provide park-n-ride near Spring Creek Trail to connect with main campus
- Potential transit oriented development for University Mall and adjacent area east of corridor
- Bagel shop
- Coffee shop
- Restaurant

Drake to Harmony

Design Character/ Image

- Do not widen or expand McClelland for autos, it will totally destroy the Mason Street alternative mode, concept, safety, and mobility
- Provide a pedestrian/bicycle undercrossing near Troutman
- Provide off trail parking

- Design single track or wide dirt track for walking and off road riding
- South of Foothills Parkway, have pedestrian/bike/bus way under College to Foothills Parkway

Resident Concerns

- Noise
- Lighting
- Visual
- Signal timing at Swallow for pedestrians to cross at the same time as bus/transit
- Concern about congestion on Harmony
- Is there enough room for transit on the east side of the tracks?

Harmony South

Bike/Pedestrian Facility

- The bike/ped path should cross the BNSF railroad tracks to access the transit center.
- The path should connect with the Fossil Creek trail under development
- A potential bike depot with storage and related facilities may be located at the transit center
- A bike shop would be a likely candidate to accompany other transit oriented development near the transit center

Parking

- A park-n-ride lot at the south transit center seems to be a necessity
- The park-n-ride lot could serve additional uses including commercial and retail businesses
- Parking at the transit center should also serve recreational users

South Transit Center

- The south transit center should accommodate transit trips from Loveland on the currently operating Foxtrot route
- The transit center should accommodate restrooms, telephones, and bike lockers

Transit Oriented Development

- Sustainable transit oriented development should accompany the Mason Street Transportation Corridor via a "transit village"
- Uses should include commercial/retail, day care facilities, bike shop, restaurants, coffee shop, and other shopping. Office space may be desired as well. Residential uses might include higher-density single and multifamily dwellings. Both office and residential uses could serve to help sustain the commercial and retail businesses.

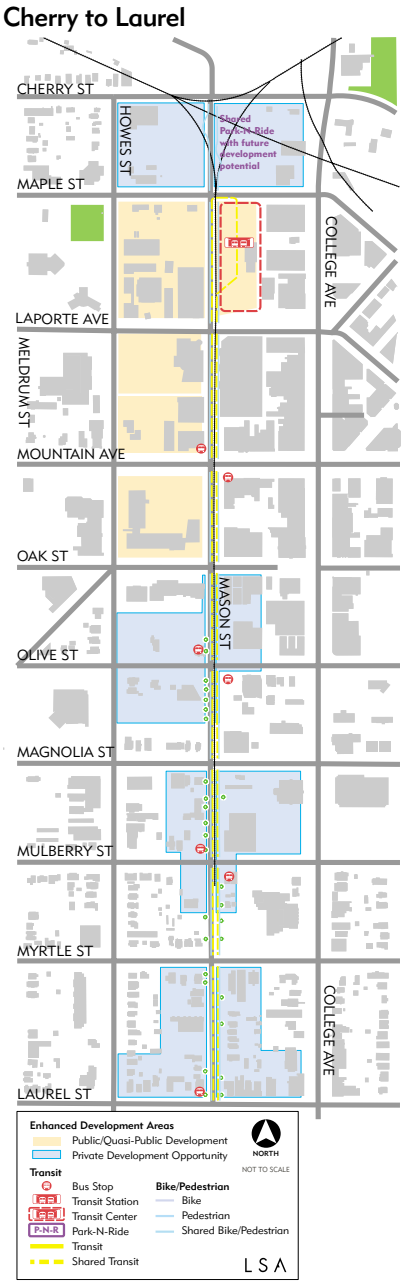
Environmental Issues

- The proposed south transit center is about ¼-mile north of the City's Redtail Grove Natural Area. This area is known to contain black-tailed prairie dogs, a variety of native grassland species, and a nesting site for a redtail hawk (one of about five sites in the city). City code requires a ¼-mile development buffer for these nesting sites.

Conceptual Plan Description

The Mason Street Transportation Corridor Conceptual Plan (see pullout map) is a refinement of the at-grade bus rapid transit approved by the Fort Collins City Council with the bicycle and pedestrian paths generally located along the west side of the BNSF Railway and the busway located along the east side.

The Conceptual Plan includes horizontal and vertical engineering plans for the corridor. This engineering plan addresses topographic challenges, surface drainage structures, underground utilities and property ownership. The plan also includes a landscape overlay, which begins to identify the locations and extent of landscape treatment along the corridor. The plan also encompasses the input, recommendations and ideas of the City staff and consultant team, property owners, and the public. The following describes the general components for each segment of the corridor.



Cherry to Laurel

The downtown segment of the Mason Street Transportation Corridor serves the rapidly changing downtown and Old Town areas of Fort Collins. Two concepts have been developed for the downtown area. The first utilizes the one-way couplet of Mason and Howes. The second concept assumes the elimination of the couplets in favor of returning Mason and Howes to two-way operation.

Both concepts center the transit element of the conceptual plan at the proposed downtown transit center located on the east side of Mason Street, north of Laporte Avenue. The one-way couplet alternative would utilize Mason Street for northbound traffic and Howes Street for southbound traffic. On-street transit stops would be at the key intersections of Laurel, Mulberry, Olive and Mountain.

The northbound bike lanes for the couplet alternative would be via an on-street bike lane on Mason Street for northbound, and a southbound contra-flow bike lane on the west side of Mason Street. Because the contra-flow lane will travel southbound, which is opposite the vehicular flow, the conceptual plan calls for a physical separator between northbound autos and southbound bicycles. This separator could either be a raised curb with landscaping or architectural bollards. This alternative would eliminate 84 parking spaces along the west side of Mason Street.

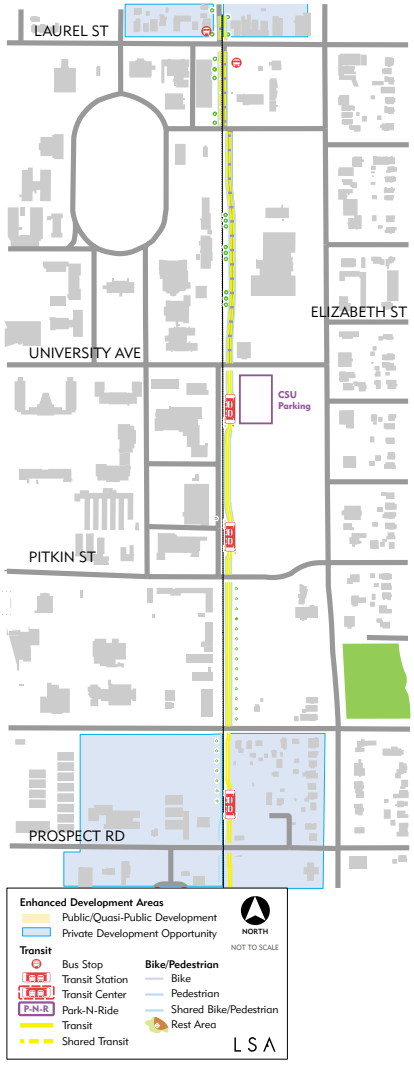
The alternative that converts the Mason/Howes couplet to two-way operation assumes on-street bike lanes for both the northbound and southbound direction between the vehicular travel lane and the parking lane. Minimal parking loss would occur with this alternative.

East-west bicycle connections would need to be provided along Laurel Street to serve destinations east or west of the Mason Street Transportation Corridor.

Under both alternative conceptual plans, new signals would be proposed on Mason Street at Cherry and Laurel Streets. In addition, all intersections are proposed to be reconstructed to enhance

sidewalk crossings, handicap ramping, crosswalk/rail flange improvements and median improvements. The Conceptual Plan also identifies the southeast corner of Mason and Cherry Streets as a possible site for a shared park-n-ride facility with future development.

Laurel to Prospect



Laurel to Prospect

The segment of the Mason Street Transportation Corridor between Laurel Street and Prospect Road traverses CSU. It is proposed that between Laurel and Mason Street both the northbound busway and bike lane be along the east side of the BNSF Railway and the southbound busway and bike lane be along the west side.

At Main Drive, south to Pitkin Street, both directions of the busway and the bike lanes will be located along the east side of the BNSF Railway because of major clearance restrictions west of the BNSF Railway. Part of this busway and bike lanes would be on the existing Mason Street, between Main Drive and University Avenue, whereas south of University Avenue, a new busway and bike lanes would need to be constructed. The busway and bike lanes for the block immediately south of University will impact the existing parking lot. As part of this Plan, parking would need to be replaced accordingly. At Pitkin Street, the bike path would cross the BNSF Railway and then continue south along the west side, whereas the transitway would remain south of Pitkin Street on the east side. At the intersection of the Mason Street Transportation Corridor and Prospect Road, bicycles and pedestrians will be accommodated via a grade separated underpass, whereas the transitway would be accommodated via a signal.

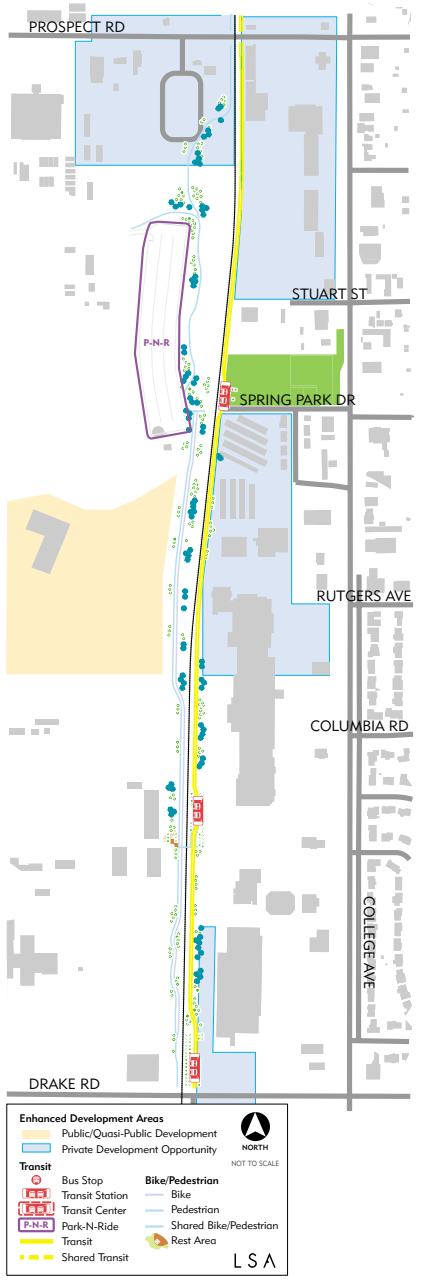
East-west bicycle connections would need to be provided along Prospect Road to serve destinations east or west of the Mason Street Transportation Corridor.

Primary transit stations would be located at University, Pitkin, and Prospect.

Prospect to Drake

The Mason Street Transportation Corridor Conceptual Plan between Prospect and Drake has a dedicated busway along the east side of the BNSF Railway and the bike path and pedestrian

Prospect to Drake



trail on the west side. Whereas the transitway is designed for a dedicated Bus Rapid Transit, it would be of sufficient design that could accommodate emergency vehicles. The bike path and pedestrian trail are separated to minimize conflicts, to increase safety, and allow a different pavement type; one for wheels and one for heels. South of Prospect Road, there is significant elevation change between the railroad and adjacent property. Because of the narrowness of the railroad bed, the busway will need to be constructed on a structure until south of the Spring Creek Trail. The bicycle and pedestrian facilities can be moved to the west, out of the BNSF Rail way right-of-way for a better alignment.

Spring Creek Bike Trail will "T" into the Mason Street Transportation Corridor bicycle path immediately north of a proposed CSU parking lot. This parking lot could be used for students at the main campus that might want to park and either walk or ride their bicycles, or take transit via a proposed transit stop located immediately east of the BNSF Railway connected by the Spring Creek Trail. This transit stop at the Spring Creek Trail could also serve the Natural Resources Research Center, a major employment center under construction.

This segment of the corridor also serves the University Mall and the CSU Veterinarian Teaching Hospital. As part of this proposal, an at-grade crossing of the BNSF Railway between these two facilities is proposed. The southern portion of the segment becomes the north leg of the Drake/McClelland intersection. The bicycle path and pedestrian trail will be consolidated as it approaches Drake Road and crosses under Drake Road to the south side.

East-west bicycle connections would need to be provided along Drake Road to serve destinations east or west of the Mason Street Transportation Corridor.

Drake to Horsetooth

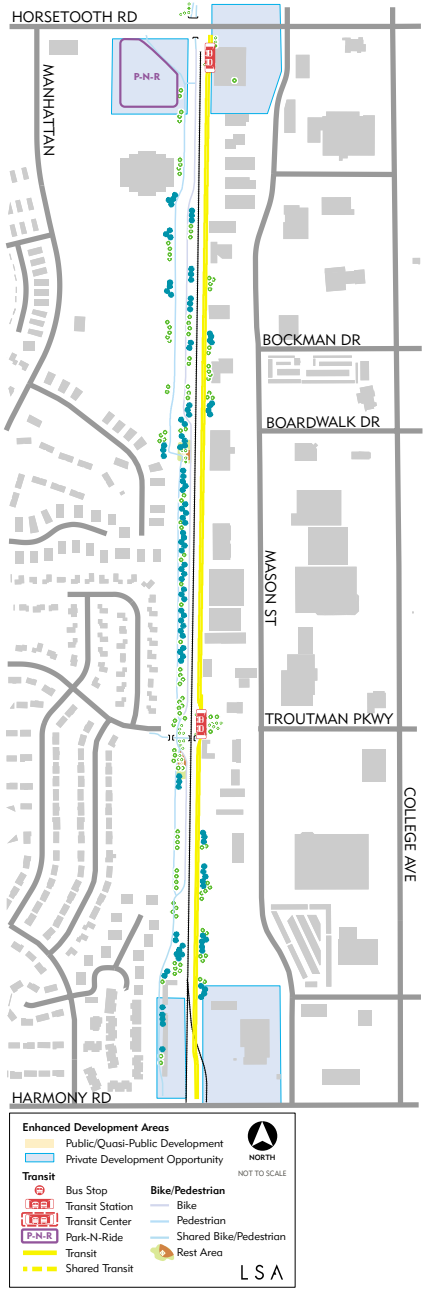
South of Drake, the bicycle path and pedestrian trail continues along the west side of the BNSF Railroad. The proposed busway shares its route with McClelland Drive until immediately south of Drake

Road where it again diverts to a separate busway. The reason for the short segment shared between bus and vehicles is to respond to the constraints of the existing roadway network with signals on Drake Road at both McClelland Drive and Redwing Road, separated by the BNSF Railway. A potential park-n-ride facility is considered for the southeast corner of McClelland/Drake. A transit stop is proposed at Swallow Road. This intersection would be at-grade with north-south stop control for transit, bicycles, and pedestrians. This intersection control could be modified, if warranted, to include pedestrian push buttons to have east-west Swallow traffic yield.

An undercrossing of the BNSF Railway is proposed near Foothills Parkway. This is an important location to connect transit and bicycle/pedestrian connections with the Foothills Fashion Mall .

A number of alternatives were examined for the McClelland/Horsetooth intersection to address the heavy congestion associated with the offset of the Mason and Horsetooth intersection. The Mas-

Horsetooth to Harmony



ter Street Plan proposes that Mason and McClelland be connected north of Horsetooth in order to alleviate this offset problem. The Mason Street Transportation Corridor Conceptual Plan includes this concept for consideration.

East-west bicycle connections would need to be provided along Horsetooth Road to serve destinations east or west of the Mason Street Transportation Corridor.

Horsetooth to Harmony

South of Horsetooth, the bike path and pedestrian trail remain on the west side of the BNSF Railway and the busway along the east side. Because of the current ditch running above the BNSF railroad, the bicycle/pedestrian trail would utilize the ditch service road south of Troutman. Because of the long distance between Horsetooth and Harmony, the Conceptual Plan calls for a grade separation under the BNSF Railroad and canal. At Harmony, the bike path and pedestrian trail will be grade separated, whereas the busway will be signalized with Harmony.

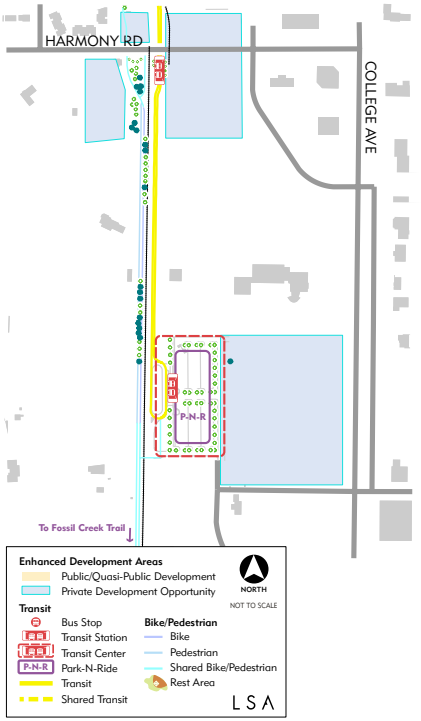
East-west bicycle connections would need to be provided along Harmony Road to serve destinations east or west of the Mason Street Transportation Corridor.

South of Harmony

The bike path and pedestrian trail are proposed to continue on the west side of the BNSF Railroad to ultimately connect with the Fossil Creek Bike Trail. The busway is to continue to the south along the east side and terminate at the south transit center proposed at a parcel vacated by the Fossil Creek Nursery. This facility would also contain approximately five acres for a park-n-ride facility serving patrons arriving from the south.

An at-grade bicycle/pedestrian connection across the BNSF Railroad is proposed at the south end of the transit center where the crossing currently exists.

South of Harmony



Transit Centers, Stations, Stops and Design

Along the length of the corridor, transit stops have been located at logical destination and connection points. These include end of the line stops or transit centers, primary transit stops, secondary transit stops, downtown transit stops, and bus connection stops. The design character of each stop will be basically the same, having improvements which fit within the character of Fort Collins, while also having an identity of their own. This identity could be in the form of architecture, special landscape improvements, or a special identifying art piece. This identity will be developed at a later time with input from the local residents and community.

Transit Centers

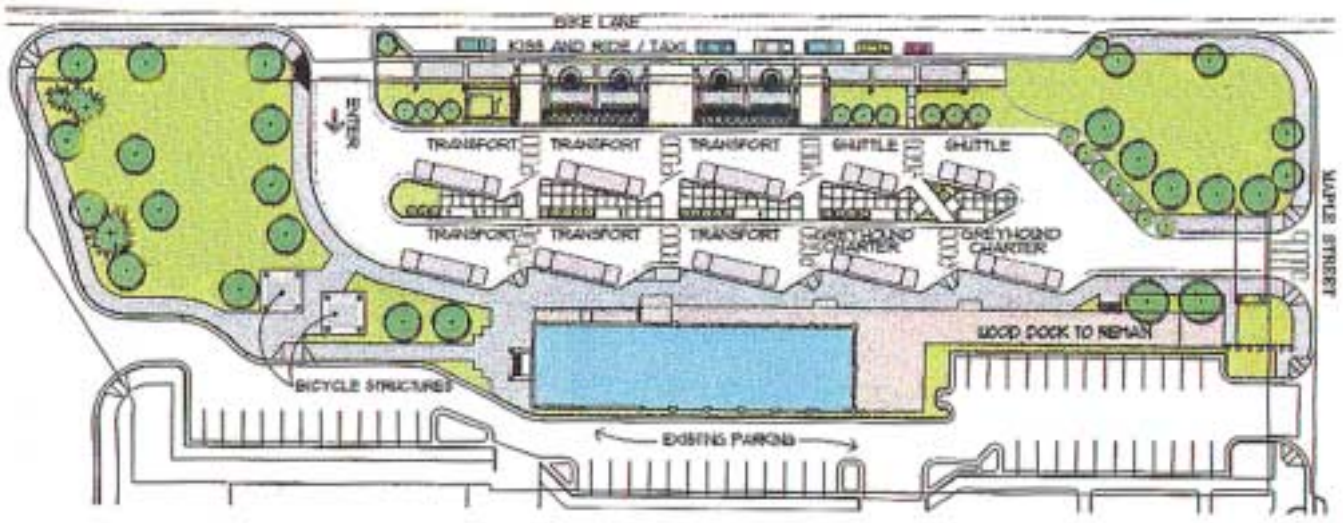
Two transit centers are located in the Mason Street Transportation Corridor. They are located at the north end of the corridor between Cherry Street and Maple Street on the east side of Mason Street and at the south end of the corridor at a proposed site of the former Fossil Creek Nursery, south of Harmony Road on the east side of the transit way. The transit centers should accomodate on-site or proximate parking for Park-and-Ride customers. (125+/- cars near the north transit center site and 500+/- cars at the south transit center site), which is intended to intercept users so that they can get on the bus at the end of Corridor rather than bringing them further into the city. The transit centers are also designed to allow buses other than those of the Mason Street Transportation Corridor to circulate in and out to make east/west passenger transfers.

Each transit center will contain a bus turnaround, a pedestrian waiting shelter, site furnishings for user comfort and safety, public restrooms, security lighting, identification signage, signage for transit rider information, and landscape improvements. Public art is also slated for the transit centers, which will add to the comfort and identity of the corridor and the individual stop.

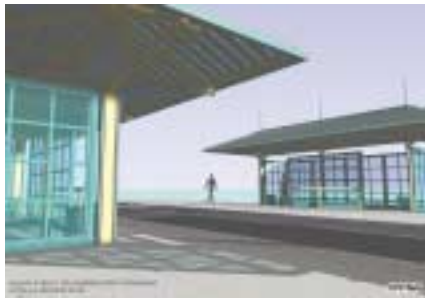
Primary Transit Stops

Primary transit stops are located at CSU (two), Prospect, Drake, Horsetooth, Foothills Parkway, and Harmony. These stops are located at the major east/west connector streets and serve as the main transfer points for patrons using the corridor.

The transit stops are designed to have two 40-foot waiting shelters directly across from each other, one for each direction of travel. These shelters will be well lit and have transparent windscreens for patron comfort. Also in-



Proposed conceptual plan for the north transit center.



Typical proposed transit stop.

cluded at each primary stop will be comfortable furnishings, transit signage, adequate lighting, landscape improvements, and opportunities for public art.

Secondary Transit Stops

Three secondary transit stops will be located along the corridor. These stops are located at key east/west connector points, which serve a major destination or important use. They are located at Troutman parkway, Swallow Road, and at the Spring Creek Bike Trail. Because of the lower expected ridership at these stops, a shorter 20-foot shelter will be used. All other improvements at these stops will match the primary stops.

Downtown Transit Stops

Downtown transit stops are located at the major east/west intersections north of Laurel Street assuming two-way streets on Mason and Howes. These stops will be on each side of the street at the near side stop location of the intersections. These stops will provide a simple bus shelter along with corridor transit signage.

Bus Connection Stops

Bus connection stops will be located at each east/west connector street to the corridor. A stop will be located at each side of the east/west street. A simple bus shelter and bus route signage will be associated with these stops. There may also be opportunities for public art and Mason Street Transportation Corridor identification.

Transit Shelter Architectural Design and Character

The transit shelters that will be part of the Mason Street Transportation Corridor will be one of the key elements that give the corridor a unique character as well as neighborhood identification. Although a specific design character has not been selected for the project, the overall design should reflect the character and architectural significance of the City of Fort Collins. Examples of character that could be used include an agricultural theme, which would reflect the rich farming history in the area; a railroad theme, because of the long impact of the railroads and how the community

grew; or a historic theme that reflects some of the older buildings along the northern end of the corridor. This character could be loosely defined as having sloped roofs, steel supports and details, and a utilitarian, functional look.

Inside the shelters, a transparent windscreen will be provided to protect patrons from inclement weather. These enclosed areas will also have comfortable seating. Each shelter will have adequate lighting for patron comfort without creating glare or being a nuisance to adjacent uses or residential areas. Convenient and easy to understand transit signage will allow the patron to know where they are in the corridor and what connections can be made from the specific locations. The pavement at the shelters should be durable, easy to walk on and comply with the requirements of the Americans with Disabilities Act. Pavements may also be a palette for public art or upgraded paving materials such as brick or stone.

Bus Technology

One comment that was heard throughout the public involvement process was the need to examine other bus technologies as an alternative to Transfort buses currently being used. There are currently major changes underway in the bus manufacturing industry that provide for line-haul buses that are pollution free and use low platforms with high volume patronage boarding and collection systems. The following are design parameters identified for a Mason Street Transportation Corridor Bus Rapid Transit System. It should be noted that these bus parameters have been included in the overall capital and operating cost estimates.

- **Propulsion—**Low or pollution free electric, compressed natural gas, liquefied natural gas, or combination propulsion systems.
- **Platform—**The Mason Street Transportation Corridor proposes a low platform bus that allows the passenger to enter directly at-grade with the slightly elevated station platform.
- **Doors—**Rather than a single front entry and separate rear exit, the proposed Mason bus would include multiple, either two or three, large doors for easy entry or exit.
- **Fare Collection System—**The preferred collection system is monthly or seasonal bus passes. One-use tickets can be purchased ahead of time or at the station vending machines. The fare collection is honorary rather than driver collection in order to obtain the high-speed bus rapid transit schedule. With random enforcement and high fines, honorary fee collections systems are 95 percent effective.
- **Visual Appearance—**The major change in the visual appearance of buses in successful operations over the past decade is to not hide the buses, but to develop a bright painting scheme that is very visible, so that the local community can identify with the Mason Street Bus Rapid Transit.
- **Seating—**Buses are equipped with a wide range of seating amenities. The Mason Street Bus Rapid Transit would be equipped with comfortable and aesthetic seating to complement the overall experience.

Brightly colored buses have proven to be more successful in transit operations. A highly visible painting scheme will help the community identify them with the Mason Street Bus Rapid Transit.

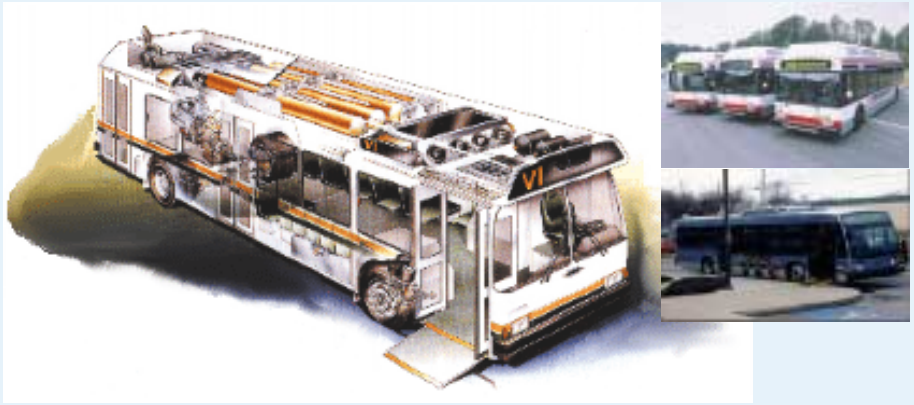
Current Bus Propulsion Technologies

The increasing amounts of air pollution and tougher air quality standards are causing automakers to search for alternative fuels. At least 87 transit agencies in the U.S. have already employed alternative fuel buses, but only 6.5 percent of the buses on the road use alternative fuels. Several different technologies currently exist.

The first and most widely used alternative fuel is natural gas. It is either used in compressed form (CNG) or a liquefied state (LNG). Internal combustion engines designed for use with gasoline can be easily converted to function on natural gas. Natural gas is the cleanest burning of all the alternative fuels. When compared with standard gasoline engines, carbon monoxide emissions were lowered by 70 percent. Non-methane organic emissions were lowered by 89 percent, and nitrogen emissions were lowered by 87 percent. Emissions of the greenhouse gas, carbon dioxide, were lowered by 20 percent. Not only does natural gas burn cleaner but it is also a much safer fuel. The heat of combustion is 1200 degrees Fahrenheit, while gasoline burns at 600 degrees Fahrenheit. The concentration of natural gas in the air must be between 5 and 15 percent for it to ignite. Natural gas has been employed on many school buses because of its safety benefits. In the event of an accident where the gas tank is ruptured, the natural gas will dissipate into the air. Many bus manufacturers, such as Neoplan USA and Orion, offer natural gas powered buses.

The design and research of electric vehicles has intensified in past decades. An electric powered vehicle truly has zero emissions. Usually a battery is used to power the vehicle. Electricity is the cleanest alternative, but many drawbacks exist. The range of a typical electric car is about 100 miles and the range for an electric transit bus is even shorter. It also takes about an hour to recharge a dead battery. Vehicles powered by electricity typically perform worse than their gasoline-powered counterparts. The problem of having to recharge the battery is alleviated with the use of a trolley bus. Rather than using a battery, they run on electricity provided by overhead lines, but this greatly limits their mobility.

Finding an efficient way to use electricity in conjunction with other technologies is one area of major development. The most widespread example is the hybrid electric vehicle. Hybrids employ an on-board generator that is powered by an internal combustion engine. When the battery is charged, the vehicle operates on electricity. As the battery loses charge, the generator kicks in. With a hybrid electric vehicle there is never a need to recharge the battery. This type of engine will cut emissions of global-warming pollutants by a third to a half. A few buses currently employ this technology.



The newest major development in the alternative fuel market has been with hydrogen fuel cells. Fuel cells combine hydrogen with oxygen in an electrochemical reaction that produces an electric current. The only by-product produced is water. Some fuel cell engines actually clean the air, with the exhaust being cleaner than the intake. Ballard Power Systems is one of the leading producers of hydrogen fuel cells. The Chicago Transit Authority has begun to use fuel cell buses powered by Ballard.

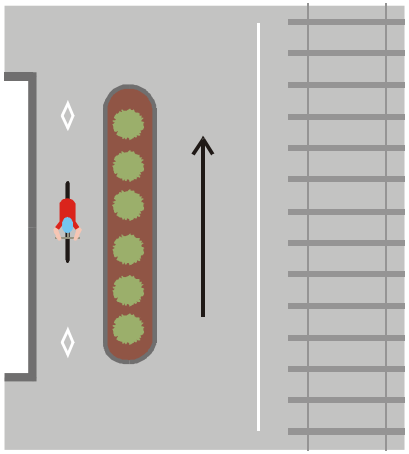
Many options exist in today's alternative fuel market. Technology has reached a point where these alternative fuel vehicles can perform as well as their gasoline-powered counterparts. Employing these fuels for use with transit buses will greatly improve air quality and conserve the world's oil supply while also offering a quieter ride.

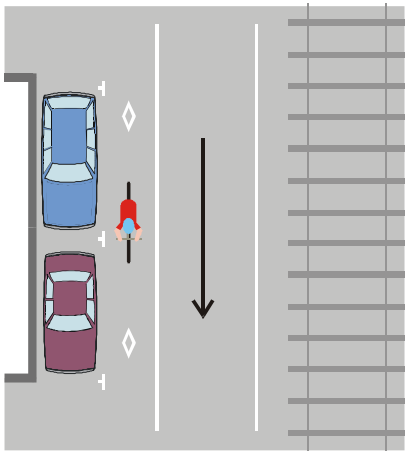
Mason/Howes Couplet

As part of the Mason Street Transportation Corridor Design Workshop, citizens raised the issue of whether Mason and Howes Streets should be converted from their current one-way couplet status to two-way traffic for both roadways. In review of this recommendation, a number of issues were raised. One of the key concerns, was that to provide two-way automobile traffic along Mason Street, left turns would not be permitted along Mason Street since the BNSF railroad tracks occupy the center lane where a left turn pocket would be typically located. If left turns were permitted from the through lane, significant backup would occur. This issue, however, was determined as insignificant, as the one-way operation already precludes many turn movements and requires drivers to figure out how they may get to their destinations.

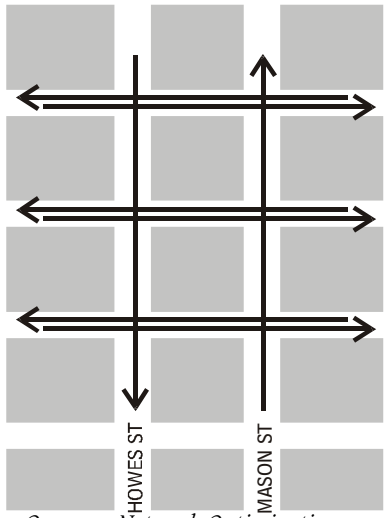
Some of the issues that favored keeping the current couplet included:

1. **Midblock Bicycle Safety**—In order to keep both northbound and southbound bicyclists on Mason Street, a separated contra flow southbound bike lane along the westerly side of Mason Street is proposed. This separation improves overall bicycle safety for mid-block locations.

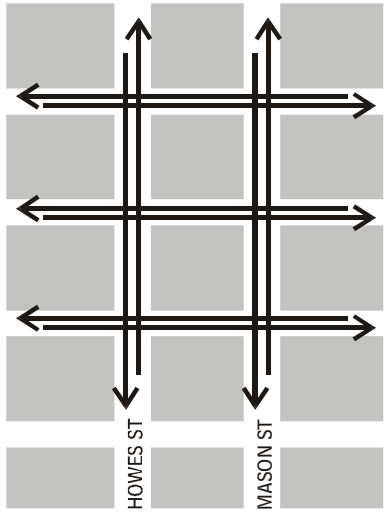




2. **Traffic Signal Progression**—Signal systems are easier to progress on one-way streets than for two-way streets.



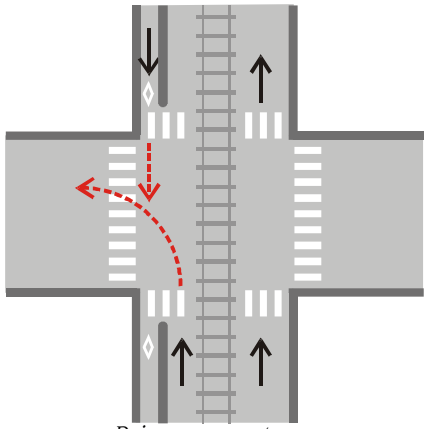
One-way Network Optimization



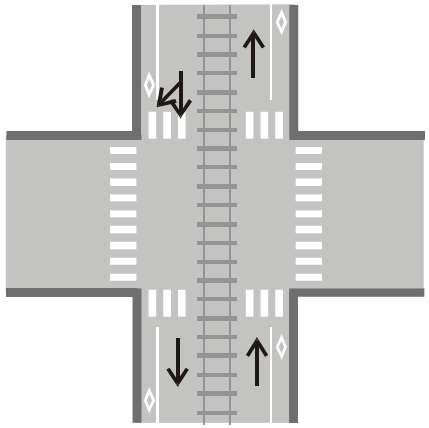
Two-way Network Optimization

A number of issues favored the conversion of Mason and Howes Streets to two-way operations. These include:

1. **Intersection Bicycle Safety—**With a contra flow bicycle lane along Mason Street, the potential of driver unexpectancy results.

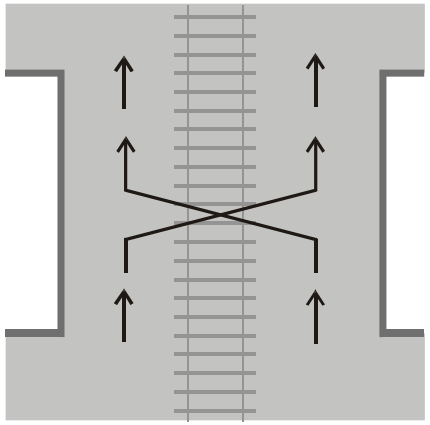


Driver unexpectancy

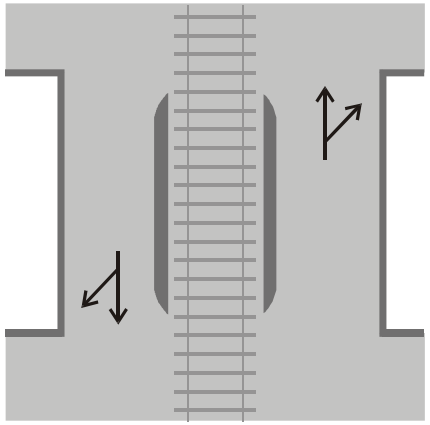


Typical automobile/bicycle expectancy

2. **Automobile/Train Safety**—Safety between automobiles and the train would increase along Mason Street with the elimination of the weave along Mason Street across the BNSF tracks.

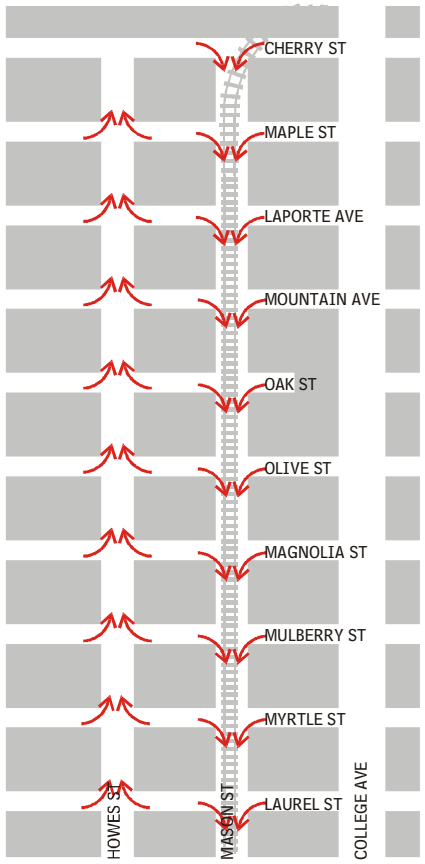


Couplet

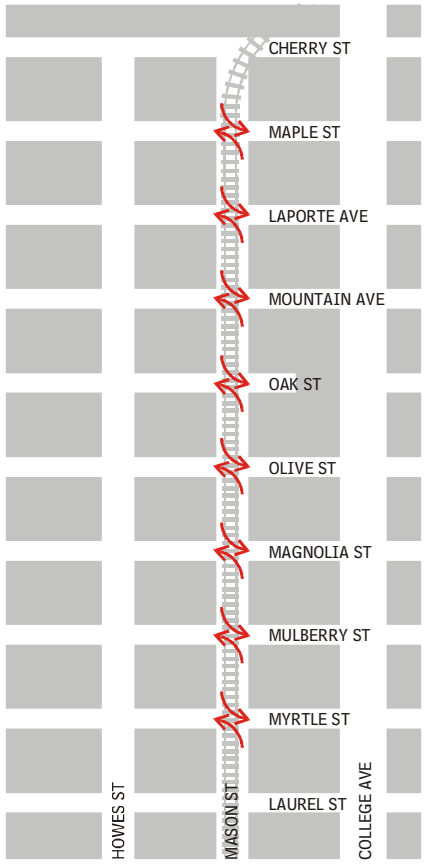


Two-way Mason

3. **Mobility**—Although the Mason Street conversion to two-way operation assumes no left turns on Mason, there are only 16 movements that are restricted as compared to the 38 restrictions associated with the current one-way couplet.

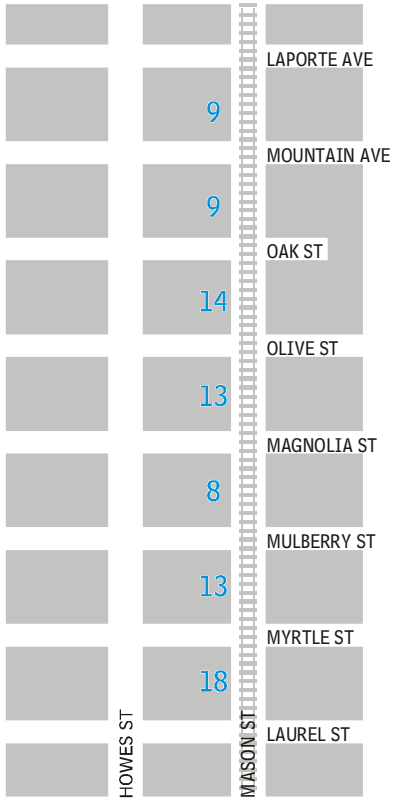


One-way restrictions (38)



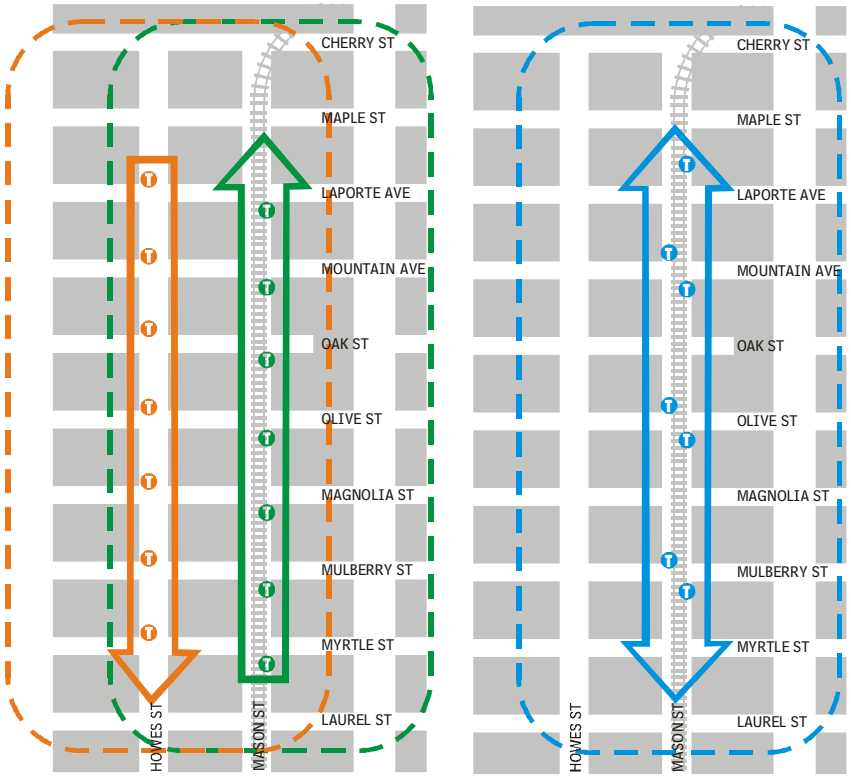
Two-way restrictions (16)

4. **Parking**—Parking along Mason Street would not be impacted with the two-way traffic, as the bicycle lane would be permitted between the travel lane and the parking lane. With the one-way Mason Street, a median barrier between the westerly northbound travel lane and the southbound contra flow bike lane would eliminate 84 on-street parking spaces which would have to be replaced.



84 parking spaces would be impacted

5. **Two Way Mason Transit Operations**—Transit would be significantly enhanced if buses could travel both north and south bound on the same street, rather than having to return via a separate facility, such as Howes Street. In addition, having both northbound and southbound transit stops on Mason Street provides for shorter pedestrian connections for customers along College Avenue and in Old Town.



One-way *Two-way*

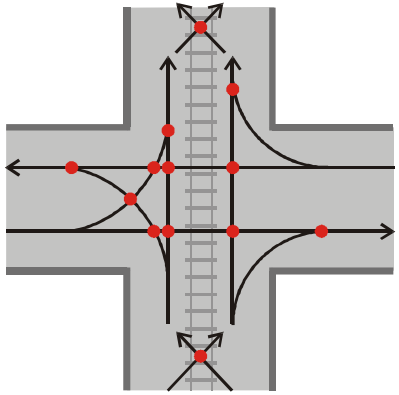
6. **Cost**—Cost to construct the divider and contra flow bike lane and to replace lost parking would result in significantly higher construction costs as compared to the minor signal, signing and striping costs to convert Mason and Howes to two-way operation.

	One-Way Couplet	Two-Way
Contra-Flow Separation	Major Costs	
Parking Replacement	Major Costs	
Traffic Operation Changes		Minor Costs

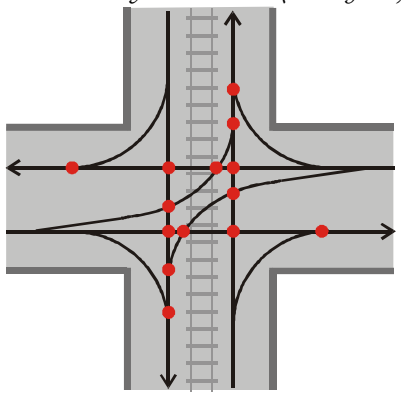
Issues that are neutral between the current couplet operation and the conversion to a two-way Howes and Mason Streets include:

1. **Vehicular Conflict**—With the current separation of northbound traffic on Mason Street and the weave between the left and right side of the tracks, there are 13 conflict points between vehicles with the current Mason Street one-way. If Mason Street became two-way, there would be 14 conflicts.

Based on a review of the positives and negatives of the two options, the elimination of the couplet and conversion to two-way operations is proposed. This design would require further study and analysis as part of the transit implementation phase for the Mason Street Transportation Corridor.



Current one-way Mason Street (13 conflicts)



Two-way Mason Street (no Mason left turns—14 conflicts)

Why do we have the Mason/Howes One-Way Couplet?

Until the early 1980s, Mason Street and Howes Street operated as two-way streets. Both roadways had very low volumes and operated with good levels of service. The idea of the couplet was to provide for a faster north/south alternative to reduce traffic along College Avenue through the downtown area.

The original couplet alternative was conceived to occur over a number of phases. The first phase was to implement the couplet from Cherry Street to Laurel Street, with Howes Street providing three southbound lanes, and with the BNSF Railway running down the center of Mason Street. Mason Street would be implemented to provide for two northbound through lanes. This first phase was implemented in the early 1980s. The second phase was to extend Mason and Howes Streets to the north and tie into College Avenue in order to make a direct connection instead of having to make left and right turns via Cherry Street to access the couplet. The idea of the extension to the north was later dropped and never implemented. There was no similar direct connection at the south end, which requires left and right turns at Laurel Street when the couplet terminates at the CSU campus.

Based on traffic studies conducted over the years, it was determined that the couplet never achieved its objective in redirecting traffic off of College. Instead, the couplet operates only to serve local destinations along the corridor itself.

Intersection Treatment

As part of the overall Mason Street Transportation Corridor Conceptual Plan, there are specific treatments for signalized and unsignalized intersections. The object of these treatments is to provide an overall continuity of design regarding function, safety and visual character for all transportation modes.

It is anticipated that with the implementation of the Mason Street Transportation Corridor, including the conversion of the existing one-way couplet into two-way for Mason Street and Howes Street, the following operational and design changes will occur:

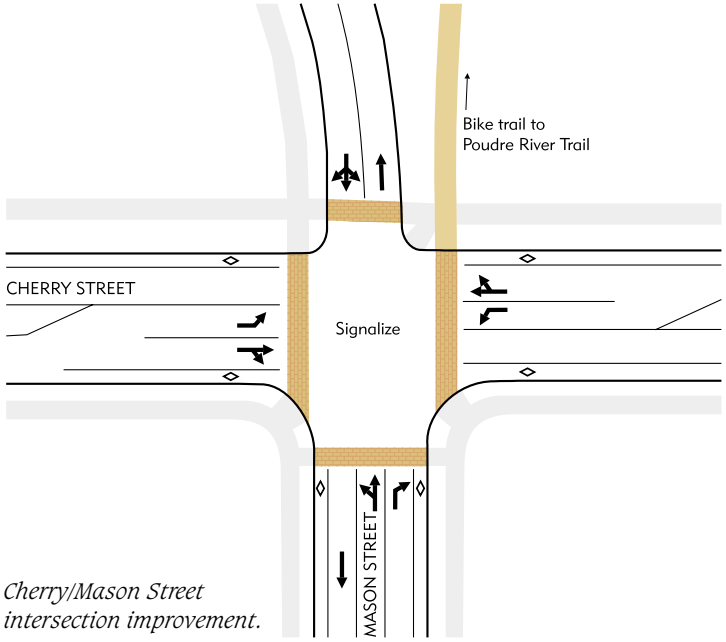
- Mason Street will provide one lane of travel northbound and one lane of travel southbound. Because the BNSF Railway is located within the center of Mason Street between Cherry Street and Laurel Street, left turns from Mason to intersecting streets will be precluded. The exceptions to precluding left turns would be the northbound left turn at Cherry and the southbound left turn at Laurel. At each of the major east-west intersecting streets, right turn lanes along Mason Street shall be provided in order to not delay through traffic for right turning vehicles yielding to pedestrians. It is further anticipated that signal timing be developed along this corridor which would give corridor buses a few seconds of dedicated green time to allow them to leave their near side stop within the right turn lane and be able to queue jump into the through lane.
- With the conversion of Mason Street to two-way traffic, on-street bike lanes would be located on both sides of Mason Street. Initially, these bicycle lanes would be as currently provided, an on-street bike lane located between the though travel lane and existing on street parking. The long term ultimate buildout plan might be to replace on street parking with off-street parking as redevelopment occurs, which would significantly enhance the on street bike lane.
- It is anticipated that with the conversion of Mason Street from one-way to two-way operation, it would be the objective of the BNSF Railway to have some form of pavement deflection installed to preclude the reasonable and prudent driver from traveling along or over the BNSF Railroad tracks between intersections.

Signalized Intersections

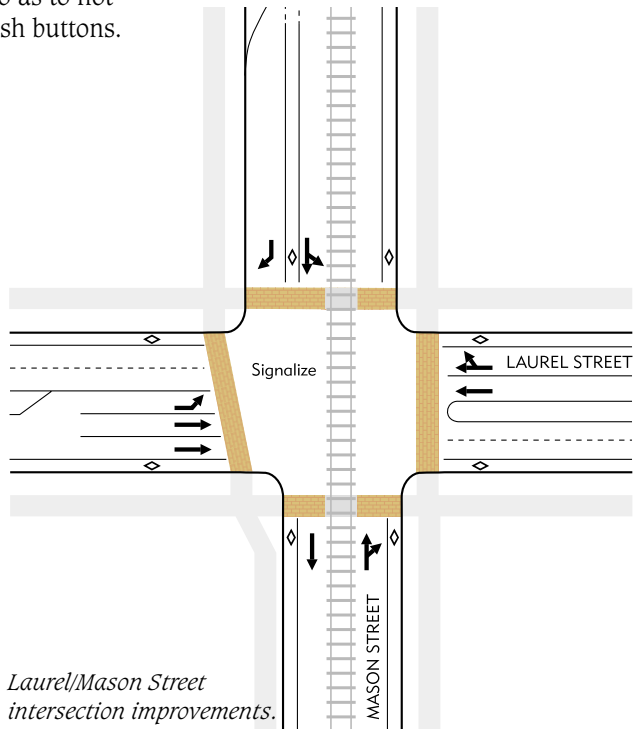
Currently, all intersections along Mason Street in the downtown are signalized except for Cherry, Maple, Magnolia, and Laurel. As part of the Mason Street Transportation Corridor Conceptual Plan, the intersections of Mason/Laurel and Mason/Cherry would be signalized. Mason Street intersection at Magnolia should also be signalized if warranted.

It is further proposed that intersections should be improved throughout the downtown area from Cherry Street to Laurel Street to include:

- Concrete paving for the entire intersection and a segment of each leg.
- The concrete intersection design shall provide for minimum flange spacing with the BNSF Railway to minimize conflicts with bicycle and wheelchair wheels.
- Signals shall have walk indicators with pre-timed cycle changes throughout the day so as to not require pedestrian push buttons.
- All crosswalks shall be done in the current treatment of crosswalk paving and color treatment consistent with the newly installed intersections on Mason at Laporte and Mountain.
- All corner ramps shall be installed with directional type design consistent with the style and design of the Laporte and Mountain intersections.
- All corner ramps shall be installed with stamped street name indicators to assist in wayfinding.



Cherry/Mason Street intersection improvement.



Laurel/Mason Street intersection improvements.

Non-Signalized Intersections

The remaining at-grade intersections along the Mason Street Transportation Corridor are all proposed to be non-signalized. These include intersection crossings of Old Main Drive, University Avenue, and Pitkin Street within the campus. The non-signalized intersection south of CSU is Swallow Avenue.

There is a menu of safety improvements that should be considered for these non-signalized intersections. These include:

- imbedded/textured crosswalks,
- pedestrian activated push buttons,
- flashing "yield to pedestrian" signs when pedestrian activated,
- flashing electronic crossing indicators with pedestrian activation,
- Manual on Uniform Traffic Control Devices crosswalk signing approaching the corridor,
- speed limit reduction signs,
- rumble strips,
- refuge islands, and
- bulbouts/neckdowns.

How will the intersections work at arterials?

One of the major issues in designing the Mason Street Transportation Corridor to provide north-south pedestrian, bicycle, and transit connections involves the intersections with east-west arterial streets, such as Prospect, Drake, Horsetooth, and Harmony. For pedestrians and bicyclists, the roadway crossings must be safe, with a minimum of wait time. For motorists along the east-west arterials, new activity in the Mason Street Transportation Corridor must not increase delays as they drive to their destination.

A number of solutions are being proposed to both improve safety and reduce travel time for pedestrians, bicyclists, and transit vehicles using the corridor, while minimizing or reducing east-west delays for motorists. For the high volume east-west arterials of Prospect, Drake, Horsetooth, and Harmony, bicycle and pedestrian grade separations are proposed. For the transitway, signalized intersections are proposed with the east-west arterial. These signals will be coordinated with the overall traffic progression along the arterials and will only be activated with the arrival of a transit bus.

How will bicyclists and pedestrians use the Corridor?

One of the primary objectives of the Mason Street Transportation Corridor is to make choices for transportation a real possibility. The Mason Street Transportation Corridor vision is that bicycle and pedestrian facilities in the corridor are highly utilized, connecting neighborhoods with places where people work, play, and shop. In order to achieve this, the design concept for the Corridor addresses the following objectives and opportunities:

- Directness and Continuity—The Plan identifies direct, continuous connections for pedestrians and cyclists.
- Connections to Neighborhoods and Businesses—Pathways are connected between activity centers and neighborhoods, which are within easy walking and biking distance.
- Separate Bicycle/Pedestrian Paths—Separate paths for bicycles and pedestrians eliminate conflicts between users.
- Safety and Security—The Corridor has been designed to be safe and secure, with conflicts between pedestrians, and bicycles, motor vehicles, and transit minimized.
- Safe Crossings—Grade separated underpasses provide for safe arterial crossings for both pedestrians and cyclists.
- Facility Design—The facilities are designed for both experienced commuter cyclists as well as younger, less experienced recreational cyclists.

How will the Corridor affect neighborhoods and businesses?

At present, much of the Corridor south of the CSU campus is inaccessible and unattractive. Both neighborhoods and businesses turn their backs to the corridor, which serves as a formidable barrier separating neighborhoods from activity centers. The Mason Street Transportation Corridor links together major destinations and activity centers and strengthens and unifies the city as a whole. Furthermore, the Mason Street Transportation Corridor Conceptual Plan has addressed the following:

- Impacts—Pedestrian and bicycle facilities will be located on the west side of the BNSF Railroad tracks, providing convenient access to neighborhoods. Transit facilities are planned to be located on the east side of the railroad tracks, to provide access to businesses and employment centers and minimize impacts to neighborhoods from transit facilities.
- Connections—Direct, convenient connections between neighborhoods and activities are provided by frequent, safe crossings of the railroad tracks.
- Compatibility—The transit facility, landscaping, intersection treatments, and pathways have been designed to be compatible with the character and scale of existing areas.

Railroad Interface

In order to gain usage of the right-of-way from the BNSF Railway, the City of Fort Collins will probably have to enter into an agreement with the Railroad. The agreement will be a legal document that sets forth the specific conditions for the use of the Railroad right-of-way. Topics that will be documented in the agreement will address responsibility for liability, maintenance, fees, permits, and taxes on improvements, emergencies, and other appropriate Railroad and City concerns.

In addition to the agreement mentioned above, the Federal Railroad Administration (FRA) and the Colorado Public Utilities Commission (CPUC) will need to review and approve the improvements and modifications to all of the grade crossings along the corridor.

The FRA and the CPUC should be brought into the process early in the engineering effort. Once the project is funded and Concept Plan approved, the coordination with the FRA and the CPUC can seriously begin. The BNSF, FRA, and the CPUC will provide valuable input and assistance to the City and the project engineer if they are brought into the project early in the engineering phase.

McClelland/Mason Connection

One of the key concerns raised as part of the open house and design workshops was the congestion of the Horsetooth Road corridor resulting from the McClelland and Mason Street offset. The primary issue is that for automobile traffic between Drake and Harmony Roads, vehicles must make a left turn and then a right turn along Horsetooth Road. This additional traffic is in excess of the capacity on Horsetooth Road between McClelland and Mason Streets. An eastbound right turn lane from Horsetooth Road to southbound on Mason Street has helped, but the congestion remains.

A number of alternatives were examined including making additional lane improvements on Horsetooth Road, extending McClelland Street south of Horsetooth Road and tying into Mason Street south of the intersection, and connecting McClelland Street to Mason Street north of Horsetooth Road.

Option One

Option Two

None of the Horsetooth Road lane improvements or the McClelland Street extension to south of Horsetooth Road solved the congestion problem. The one alternative that did improve the traffic flow was the McClelland Street to Mason Street connection north of Horsetooth Road.

This improvement first eliminated all northbound and southbound traffic between Mason and McClelland Streets from Horsetooth Road. Second, it significantly reduces northbound lefts from Mason Street to Horsetooth Road, which is a critical move of that intersection. Third, the connection improved the overall signal progression along Horsetooth Road in that without the high demand along McClelland Street, the intersection of McClelland Street could be limited to right-in and right-out only and the signal could be removed.

This connection is consistent with the City of Fort Collins Master Street Plan. It should be noted that this improvement is not critical to the overall implementation of the Mason Street Transportation Corridor. However, the connection would improve vehicular traffic on Horsetooth Road and design and funding for this improvement should be pursued.

Corridor Design Character

The following design principles are intended to reflect the design direction and goals for the Master Plan of the Mason Street Corridor. These principles will be used to test the design to make sure that it follows the wants and desires of the public, lead team, staff and design team.

- Corridor Character—The design character of the corridor reflects the area that it goes through, while maintaining common elements that give the Mason Street Transportation Corridor a unique appearance and identity.
- Positive Impression—The corridor is a community asset of which the citizens of Fort Collins can be proud. The project provides an attractive and safe corridor that people will want to use.
- Activity Zones—The corridor design encourages and creates activity areas and focal points that attract people to and pull people through the corridor.
- Good Linkages—The corridor is easy to use with good access for transit riders, bicyclists and pedestrians. The Corridor has good connections to adjoining neighborhoods, businesses, institutions, and other community destination points.
- Public Art—The corridor design incorporates public art, creating locations for both identity elements and "discovered" elements.
- Linear Park—The design connects the major "green" spaces to create a long-term vision of the corridor as a single linear park system.
- Landscape Groupings—Landscape and landscape elements are extended throughout the Corridor creating spaces, color, shade, and groupings where activities occur and land area permits.
- Buffering of Adjacent Uses—Where needed, landscape buffers are provided that screen the impact of the corridor from adjacent residential uses.

Will land uses change along the Corridor?

The Corridor encompasses or is adjacent to most of the major activity centers in Fort Collins, including Downtown, the CSU main campus and south campus, the College Avenue commercial corridor, and the Harmony Road corridor. Land uses in these areas have changed significantly over the past twenty years and it is anticipated that change will continue to occur in these areas.

The Plan envisions opportunities for development or redevelopment in the corridor that is oriented to transit opportunities, improving access to the corridor. While historically development has "turned its back" on the corridor, it is envisioned that future development would be oriented to take advantage of the opportunities provided by transit, walking, and cycling activities.

One of the primary goals of City Plan, the Comprehensive Plan for Fort Collins adopted in 1997, was to encourage the development of major activity centers as mixed-use, pedestrian, and transit-oriented districts. The development of the Mason Street Transportation Corridor represents a rare opportunity to ensure the long-term viability, livability, and functionality of this critical core urban zone.

What will the Corridor look like?

Right now, the Corridor is a study in contrasts. The north end is changing with the construction of the County Justice Center, the new parking facility, a new city office building, and the transit center. Other areas along the corridor are changing as well, with increased employment, retail, and housing. These new developments will change the face of the corridor, and increase opportunities for transit, walking, and cycling.

The vision of the plan is for a cohesive design that integrates transit, bicycling, walking, and some vehicular traffic in an attractive, urban environment.

Development along the Corridor is anticipated to be more urban with plazas and other gathering places for people, while the natural environment is integrated as an important part of the overall character of the Corridor.

Landscape Design

Throughout the process of this project, the importance of making the Corridor a special place that people will want to use has been a key aspect of the landscape and urban design. For the Corridor to be truly successful as an active place in Fort Collins, a series of events or nodes needs to be developed that help pull people through the Corridor and will give it special identity that users will want to visit over and over again. This series of spaces and events needs to be developed by the community and adjacent neighborhoods so that each important space along the corridor has special meaning to the trail users. These improvements could be through the addition of landscaping, public art, small vendors, water features, shelters, or any other improvement that the community felt was needed.

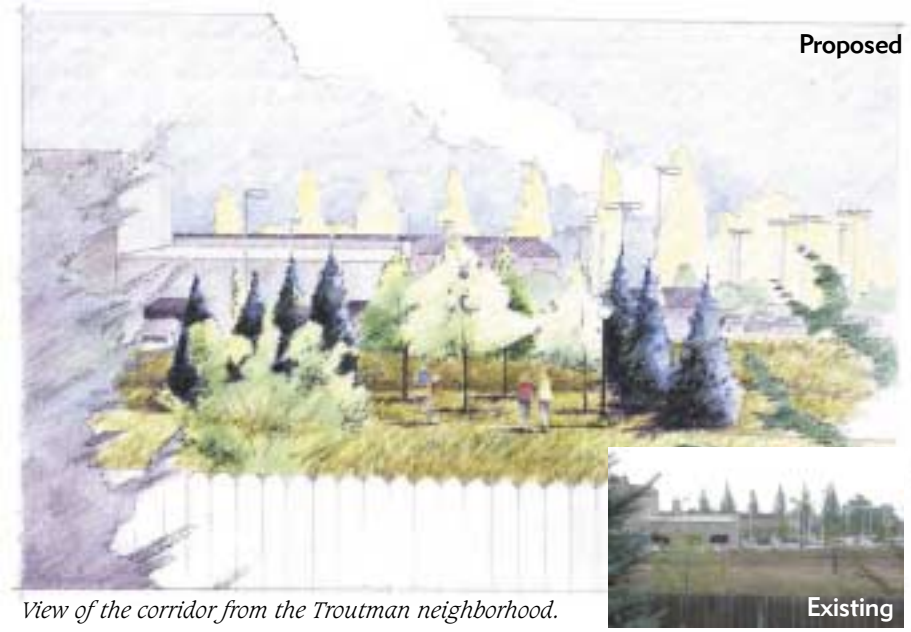
The Mason Street Transportation Corridor also offers a unique opportunity for the City of Fort Collins to create not only a transportation corridor, but to create a new linear park that connects Fossil Creek to the Poudre River. This park includes the 100-foot right-of-way of the railroad and adds to that the borrowed open space of drainage ways, irrigation canals, and abandoned street right-of-ways throughout its length which will add to the beauty of the Corridor over time.

The basic concept for the overall landscape design is to place landscape improvements in key areas along the Corridor. These areas are identified by either some type of planned use like a rest or transit stop, or where the Corridor widens out sufficiently to allow for larger landscape groupings. The larger landscape groupings consist of larger shade trees, ornamental trees, and larger shrubs that give definition to these larger spaces. Where space allows, areas of manicured turf should be used (where activities require this type of treatment) and in areas between these more intensely planted areas (where space does not allow for larger vegetation types), simple groundcovers or native grasses should be planted.

Where possible, the plants proposed for the Corridor should be xeriscape plantings, which will require less irrigation and potentially less maintenance. It is not the intent to create a lush green corridor throughout, but rather to create a landscaped environment that matches the physical requirements of the area. In the downtown and at CSU, for instance, bluegrass turf and large shade trees may be the right choice for landscape materials, while south of Prospect Road, native trees, shrubs, and grasses should be used to match the character of the surrounding areas.

Downtown

The landscape treatment for the downtown area from Cherry to Laurel Streets consists of adding street trees along Mason Street where they currently do not exist. The intent is to leave as many existing trees as possible and to use new trees to create a consistent streetscape environment to help define the character of both the downtown area and the Mason Street Transportation Corridor. Irrigation will need to be added or modified to accommodate the new landscape.



View of the corridor from the Troutman neighborhood.

Colorado State University

At CSU, the landscape improvements for the Mason Street project should match the character and identity of the university. These improvements include shade trees which both identify the corridor and fit within the pastoral quality of the campus. Because of visibility, large areas of shrubs should be kept to a minimum.

Prospect to Drake

This area is characterized by CSU and open fields to the west, and commercial/retail uses on the east. Where allowed by CSU, the pedestrian and bike trails meander outside of the 100-foot right-of-way, creating large pockets for landscape improvements and activities. These pockets will become one of the key identifiers of the Corridor and will help to make the pedestrian experience more pleasurable for the user. These pockets will be planted with a variety of large trees, ornamental trees and shrubs along with native grasses and groundcovers.

Drake to Harmony

Irrigation ditches and residential uses west of the Corridor characterize this area. Because of these residential uses, where space is available, plantings should serve as a buffer to the uses of the trail and transit and to the impact of the commercial and retail uses east of the Corridor. These buffers are comprised of more densely planted shade trees and evergreen trees where space allows. Adjacent to the trail, low shrub hedges occur to screen the trail from the residences and to protect trail users from walking into the irrigation and drainage channels.

Harmony to South Transit Center

This area is more open in character, but fewer locations exist for larger planting pockets. Where possible, these pockets will be planted with trees and shrubs to break up the linear effect of the Corridor.

Pedestrian/Bikeway Amenities

The conceptual plan for the Mason Street Transportation Corridor proposes a series of features which provide amenities for the pedestrian and bicyclist. These improvements include primary and secondary rest stops. The rest stops are located at wide areas in the Corridor where space and need allow. The rest areas are intended to provide a series of focal points for the trail system, which makes it a destination, each with a unique character or public art piece. Where possible, they are located near a transit stop. Rest stops for the trail system are located south of Prospect Road only.

Primary Rest Stops

Primary rest stops are located where the bike and pedestrian trails connect with east/west bike and pedestrian connections. These rest stops consist of a shelter, tool and air station, public telephone,

Proposed bike and pedestrian underpass at Troutman Parkway

comfortable seating, picnic tables, and a drinking fountain where possible. These stops also include trail signage, trail maps, and public art.

Secondary Rest Stops

Secondary rest stops are provided at key locations along the trail where space allows or a focal point is possible. While not at major connection points, these stops offer the opportunity for elements that help to draw people along the trail and to create comfortable resting points along the way. These stops consist of a smaller shelter, seating, trail signage, and public art opportunities.

Signage and Wayfinding

The implementation of a Corridor-wide signage and wayfinding system is critical to its success. This system will identify specific locations along the Corridor for both pedestrian and transit users and will identify locations, connections, mileage, points of interest, historic facts, and adjacent uses. This system will also identify transit schedules, bus connection schedules, transit stops, and route information. This system will also offer another element for the opportunity to give the Corridor a unique character that is found from one end to the other. Public art, graphics, and color can be used to make the signage both user friendly and attractive. This wayfinding system can also be placed at key locations outside of the Corridor to direct pedestrians, bicyclists, and transit riders to the Corridor.

Another important component of the signage system is to identify the Corridor on City maps, Park and Recreation maps, Transfort route information, CSU maps and information, downtown maps, and neighborhood maps throughout the city.

Basic features of the signage and wayfinding system include:

Transit Signage

- overall Corridor map/location map,
- Mason Street Transportation Corridor route and schedule information,
- Transfort route and schedule information,
- circulator route and schedule information (if needed),
- key destinations at each stop and how to get there, and
- connections for future variable message signs.

Pedestrian/Bike Signage

- overall corridor trail map/location map,
- trail connection information,
- key destinations at each stop and how to get there,
- transit information,
- trail rules/regulations,
- mileage markers, and
- historic or art work identification markers.

Off Corridor Signage

- direction signs and mileage to the Corridor.

Corridor Lighting System

The intent of the Corridor lighting system is to place the correct amount of light needed for each use so that it functions safely and does not distract adjacent uses. The lighting system will be specifically designed to address transit needs and bike/pedestrian needs. The character of the light fixtures used should match the area that the Corridor goes through, providing adequate light that fits with the surrounding uses.

Transit Lighting

Lighting needed for the transit system falls into two categories: Roadway lighting and transit stop lighting. Roadway lighting will match the requirements of any other street in Fort Collins. This lighting will consist of taller light poles with a light fixture that lights only the roadway, and not adjacent areas. This can be accomplished by providing lights with “cut-off” type fixtures, which lessen the spillage of light to adjacent uses.

Transit stop lighting will consist of lower height pedestrian type poles, which guide patrons to the stops, and light fixtures, which will be built into the transit shelters. Transit shelters will generally have a higher light level for patron comfort and safety.

Pedestrian and Bikeway Trail Lighting

The pedestrian and bikeway trails will have adequate light to provide a safe feeling for the Corridor. The trails will have less light than the transit way, and fixtures will be spaced further apart. These fixtures will consist of a mix of low pedestrian poles (12-foot height), bollard lights, and lighting at the rest stops. Each type of light will have a "cut-off" type fixture to lessen the impact of the light to adjacent uses

Right-of-Way Requirements

Due to spatial constraints and the construction of amenities to support the project objectives, a relatively minor amount of land will have to be acquired to construct the Mason Street Transportation Corridor project. The single largest plot of land requiring acquisition is located south of Harmony Road for the proposed south transit center. This plot of land was selected due to its current availability and proximity to the Corridor and College Avenue.

The remaining plots of land requiring acquisition are located in small pockets along the alignment ranging in size between 2,500 square feet and 10,000 square feet. Many of these pockets are directly related to transit amenities (stops) along the corridor and the space necessary to realign the transit busway prior to crossing a major east-west arterial.

Enhanced Development Areas

As part of the planning process, a number of private ownership areas along the corridor have been identified that have the potential to capitalize on transportation activities along the Corridor. These areas, identified as "Enhanced Development Areas" (EDAs), have the potential for an increased amount of mixed-use development activity. In most cases, these areas have some level of development or redevelopment activity that could be realized in the near term, as well as an enhanced potential in the longer term as the Mason Street Transportation Corridor improvements are implemented. Conversely, increased density around transit stops promotes transit ridership and supports the proposed transit.

Historically, the dynamics of development around transit stations changes once public investment in the transit system and stations occurs. Private sector investments in convenience services, such as coffee shops, restaurants, and entertainment facilities, begin to emerge to serve local transit users. As these activities occur, new trips begin along the transit and bicycle/pedestrian corridors. Employees in the downtown area might want to ride the bus rapid transit south to new restaurants. Employees in businesses at the south end of the Corridor might use the Mason Street Transportation Corridor to travel to the downtown for shopping or personal business.

The Mason Street Transportation Corridor Conceptual Plan identifies locations along the corridor which are currently experiencing public investments. These include the Larimer County Justice Center, new City of Fort Collins Office Buildings in the downtown area, and the Natural Resources Research Center south of Prospect Road.

These new areas of public investment also represent opportunities for enhanced development activities that will benefit from transportation improvements along the Mason Street Transportation Corridor. Additional private sector development, such as restaurants, retail, and offices, likely will spring up in response to new public sector activities.

In order to encourage enhanced opportunities within these EDAs, certain criteria should be present, including:

- willing participation of property owners and other stakeholders,

- existing or potential market opportunities (transportation activities will not create a market in and of themselves),
- opportunities to leverage public investment, and
- ownership patterns and character of surrounding area that lend themselves to development opportunities.

The Mason Street Transportation Corridor has the potential to be a unique development opportunity—a place where live/work/shop/play activities are encouraged through increased concentrations of residents and employees, mixing of appropriate land uses, and the creation of pedestrian-oriented development and public right-of-ways.

Development opportunities by land use type are discussed separately in the following paragraphs.

Housing

The Corridor provides a unique opportunity to diversify housing choices and increase density for live/work locations, both within and proximate to the Corridor. Changing demographics (i.e., smaller households, fewer children, more empty nesters, etc.) in Fort Collins and along the North Front Range support increased demand for higher-density urban housing. A transit corridor, offering easy access to work, shop and play opportunities, provides the ideal location for this type of housing.

The Corridor currently contains approximately 18,000 households, or 37 percent of the city's total households. Land use forecasts indicate the potential for approximately 4,500 to 5,000 new housing units, or 10 to 15 percent of Fort Collins' housing growth over the next 20 years.

Retail/Service

The Corridor provides a unique opportunity to capitalize on transit proximity and access. This, in turn, creates the potential for destination-oriented retail uses. Transit typically provides a retail establishment with a greater trade area draw, or access to customers outside the immediate neighborhood. Their use of transit brings them into the trade area when they might not have otherwise.

Potential for Development			
Land Uses	Short-Term (1- 5 Years)	Mid-Term (5 - 10 Years)	Long-Term (10+ Years)
Retail			
Specialty Retail		X	
Entertainment Retail		X	
Neighborhood-Serving	X		
Community-Regional		X	
Office			
Class A High-Rise			X
Corporate Campus		X	
Class B Mid-Rise	X		
Incubator Space		X	
Industrial			
Office/Warehouse	X		
Office/R&D	X		
Light Industrial	X		
"Flex" Space	X		
Housing			
Rental Apartments	X		
Rowhouse/Townhouse		X	
Condominiums		X	
Live/Work Lofts		X	
Affordable Housing	X		

The Corridor currently contains approximately 9,400 retail employees, or 74 percent of the city's total retail employment. Land use forecasts indicate the potential for approximately 700,000 to 900,000 square feet of new retail space in the Corridor, or 25 to 30 percent of Fort Collins' retail growth over the next 20 years.

Office/Flex

The Corridor provides a marketable amenity for office/flex space—both for developers and employers. The easy transit connections and multi-modal aspect of the Corridor will make it an attractive destination for employers and employees. The overall higher density anticipated in the Corridor will also better address live/work opportunities. As experienced in other communities, these transit corridor characteristics translate into lease rate premiums, higher occupancy rates and better economic returns to the development community.

The Corridor currently contains approximately 24,500 nonretail employees, or 56 percent of the city's total nonretail employment. Land use forecasts indicate the potential for approximately 1.5 to 2.5 million square feet of new office/flex space in the Corridor, or 20 to 30 percent of Fort Collins' office/flex space growth over the next 20 years.

Transit Supporting Development Strategies

Transit-supporting development supports use of a multi-modal transportation system including automobiles, transit, walking, bicycling, and ridesharing. It is a strategy to preserve mobility and livability as the region grows.

Strategy components focus on building concentrations of population and employment in the Corridor, mixing appropriate land uses and encouraging pedestrian-oriented development.

Goals for transit supporting development vary across multiple perspectives.

The benefits of transit supporting development are numerous and can be social, economic, and environmental. The following are common benefits resulting from well-planned transit supporting development:

Social

- revitalized city centers/commercial cores,
- revitalized neighborhoods and create focal points for community life,
- more choices for people to live and work, and
- more accessible transportation.

Economic

- leveraged public investment with private investment,
- increased property values,
- increased tax revenues, and
- more diverse commercial opportunities.

Environmental

- reduced congestion,
- increased community mobility,
- improved air quality, and
- diverse travel options.

An example of mixed-use development along the Corridor as part of Mason Street Civic Center Parking Structure.

Public Art Master Plan

The central premise of this plan is that good public art responds to the people and the place for which it is created. To this end, commissioning public art for the corridor will be a process creating partnerships between artists and the community to create not only works of art, but more broadly, artful public spaces.

Planning and construction of the Mason Street Transportation Corridor is a task that will stretch over many years. The integration of artful elements into this effort should take many forms. These recommendations represent the first step. The approaches included in this document cast a broad net of artistic involvement. The current recommendations are both a source of inspiration to the planning teams of successive phases and a reminder that artists can be a huge resource for making the Corridor a place of beauty, utility, and civic pride.

The second phase of artistic involvement will happen as the Corridor Plan moves beyond the broad planning stages and into phased design and construction. During each phase of development the planners, architects, artist consultants, and citizens need to revisit these Art Master Plan recommendations to determine which of the listed opportunities are appropriate for the project under development. Based on that review, a specific Call for Entries should be developed which describes the site and the project in detail. The review of each phase of development for artful involvement should happen early in the process, as soon as the scope of development is determined. This early call for artists will maximize both budget and creative solutions to project development.

A formal gateway to the new Justice Center park.

Finally, the Art in Public Places Committee for the City will issue the Call for Entries either as an open competition or invitational commission and engage a specific artist or artist team to complete the work for that phase of development.

Artful Public Spaces

The aesthetic character of the Corridor will be partly shaped by necessity. However, the vision for the Corridor is broader than pure function. Citizens and planners have crafted a vision of the Corridor as a linear park, a special place where people want to be because there is both utility and rich experiences for the senses. Public art will be a key element in the creation of this special environment. This plan advocates for an integrated practice of public art that creates partnerships between the community and the artists. The art that is created must support the rhythms of life within the neighborhoods along the length of the Corridor. This integration is a practical approach and is in keeping with the Art in Public Places program for the City of Fort Collins and national trends in public art.

Public art should not be limited to free standing sculpture. Art can and should be incorporated into the design of common streetscape elements. Site furnishings offer many opportunities for the introduction of public art. The cities of Seattle and Portland are well known for their creative approaches to commissioning streetscape elements such as bus stops, drinking fountains, manhole covers, and light standards. Over the last five years, the City of Fort Collins has developed a proactive program for integrating art into new public works projects. These artful elements expand the sense of meaning and pleasure in the city, infusing new spaces with a level of thoughtfulness, craft, and amenity.

These "placemaking" strategies can range from modest efforts to distinguish unexpected, isolated, functional objects—the directional sign, the newspaper box, the vending machine, the public bench—to profound transformations of Corridor-wide facilities and networks. "Public art" in this sense extends its traditional and decorative functions to include such things as walls, lighting, parking lots, trails and bikeways, plazas, and building design, all of which may provide inspiration to a public artist.

Goals

The primary goals of the Corridor Public Art Plan are:

- to support the broader aesthetic and functional goals of the Corridor Master Plan,
- to create a visually and functionally superior environment for city residents and visitors, and
- to integrate the creative work of artists into the development of the Corridor and to thereby encourage the vitality of the Corridor through the enhancement of public spaces in general and the pedestrian landscape in particular.

Emerging Opportunities

The following broad list of places and ideas for integrated public art emerged from site visits and feedback from the focus groups and meetings with staff.

Entries and Access

The Corridor is a web of connections. Access to and from is important both functionally and symbolically. These intersections are literally the connecting points between the Corridor and the surrounding neighborhoods and to the city at large. These access points are prime locations for public art.

Possible areas of focus:

- Paving treatments at access points and important intersections,
- sculptural markers,
- formal gateways at major transit centers, and
- earthworks.

Paving

The great majority of paving along the length of the corridor will be standardized based on utility and overall design continuity. Exceptions to this standard paving are special areas designed to prevent monotony and create accent. These accent areas are where artists can best contribute. Integrated art paving is also an area which requires rigorous material selection and limited application because climate and routine maintenance are destructive to specialized hardscape surfacing.

Possible areas of focus:

- Key access points,
- significant intersections,
- designed paving as an aid to wayfinding, and
- insets to draw attention to sites of historic/civic interest and special view corridors.

Signage and Wayfinding

System-wide signage and wayfinding is a key element of the Corridor Plan. Wayfinding is not only a result of good signage. Subtle cues, locator maps, and significant landmarks (both places and pieces) are all a part of a range of indicators that help people learn their way through town. Integrated art elements can be a part of an effective orientation program.

Possible areas of focus:

- Sculptural sign holders,
- artist designed trail markers and icons, and
- special sculptural markers and monuments that become significant landmarks.





Walls

Retaining walls will be a common element along the new Corridor. There are possibilities for treating these walls artistically. These unique wall treatments offer another alternative for enhancing the character and distinctiveness of the Corridor.

Possible public art treatments include:

- artistic stone work,
- mosaic,
- murals,
- sculptural walls created with formliners, sandblasting and staining, and
- mixed media relief.

Bridges and Railings

Artists can become involved designing artistic railings, accents, or even entire bridges. The artistic treatment of railings can extend beyond bridges.

Possible areas of focus:

- balcony railings,
- stair handrails,
- queuing rails,
- "lean rails", and
- fencing at selected locations.

Primary and Secondary Rest Areas

The rest areas are an exceptional opportunity for artists to become involved in all or part of the design. Each rest area is part of the larger fabric of the Corridor and at the same time is part of a particular neighborhood. If designed with creativity and amenity, the rest areas can become destinations, places that bring people to the Corridor for the express purpose of enjoyment. These areas offer a richness of utility, history, place, and social interaction that can be deepened through the creations of artists working in collaboration with the larger design effort.

Seating

Seating plays an important role by providing the places for people to pause, gather, rest, wait, and take in the view. Artists can create seating that is in keeping with the natural setting, and unique, and memorable.

Possible areas of focus:

- bus shelters and benches,
- transit Center seating,
- "along the way seating,"
- seating which focuses on a special view,
- sculptural seating at the rest areas, and
- interpretive stops.












Site Furnishings and Utilities

Trash cans, newspaper dispensers, electric transformer boxes, air vents, manhole covers—all of these are part of the infrastructure of any town. These utilities are conceived of as purely functional and their visual impact is often overlooked. Often the placement and the neglect of these objects diminish the quality of the surrounding environment. Artists can help rethink and redesign these elements so that the infrastructure contributes to the look and experience of the place.

Possible areas of focus:

- buses,
- seating and picnic tables,
- trash cans,
- transformer boxes,
- air vents,
- bike racks,
- newspaper racks,
- utility covers,
- doggie pick-up bag dispensers,
- drinking fountains,
- shelters and shade structures, and
- air and tool stations.

Temporary Works

The use of temporary public art projects and exhibitions can serve two distinct purposes. First, by using public artists to create or embellish temporary structures, such as those associated with construction, those sites are transformed into an occasion of delight and anticipation of the final outcome of the project in process. Temporary murals, for example on wooden construction walkways or walls become sites for social interaction, community pride, and an enriched visual landscape.

Second, temporary exhibitions serve as visual enrichment and an occasion for community dialogue and expand the range of visual possibilities that the public can engage in as "art." Some of these works are not suitable as permanent commissions because of their ephemeral construction or lack of technical expertise but serve to enrich the Corridor for an expressly limited time.

Possible areas of focus:

- student works,
- ephemeral or seasonal works (e.g. ice sculptures),
- pieces on loan, and
- artwork associated with neighborhood gatherings or festivals.

Signature Pieces

The bulk of these recommendations focus on integrated artworks, public art that combines both utility and beauty to support the life of the Corridor. In addition to these good works, there will undoubtedly be opportunities along the Corridor that call for signature works. These pieces would typically be more purely sculptural in nature and would both accent and distinguish the locations for which they are commissioned.

Emerging Opportunities continued...

Private Development and Public Art

As the Corridor continues to grow there will be an increase of private development and redevelopment along its length. As such, developers have the opportunity to include art in projects that border the Corridor. This kind of "publicly viewed, privately funded" art can greatly contribute to the aesthetic enrichment of the Corridor as well as increasing the attractiveness of these private developments to the users of the Corridor. Particularly when one considers the ultimate size and scale of the Corridor and its myriad offerings, one realizes that the difference between "public" and "private" spaces is a conceptual distinction which is useful and obviously necessary, but which is often superfluous to the actual experience of being there. "Public" and "private" often merge and coalesce, sharing the same visual and experiential "field."

Conclusion

This set of recommendations for art along the Mason Street Transportation Corridor focuses on commissioning works that are part of the fabric of the larger Corridor and which expressly support the activities and life rhythms of the developing Corridor and the surrounding neighborhoods. This integrated view of public art is the primary aim of this Master Plan because it focuses the artists and the community on the larger good of supporting the life of the emerging Corridor and the vital interconnections with the town. A site integrated approach is both humble and dynamic, and has the potential to leverage the art dollars into partnerships which will impact far beyond the scope of any single piece and any single person.

Many different areas make up the "fabric" of the Corridor.

The Conceptual Map

The map on the next page displays a visual understanding of the possibilities the corridor will provide for the city. Not only will it enhance north-south transportation, it will also draw the community to the Corridor to enjoy the amenities of the activity centers.

Possible enhanced development areas along the Corridor are shown in blue (private sector) and yellow (public/quasi public sector) overlays. Traditional transit bus stops are concentrated in the downtown, with transit stations located midtown and further south through the CSU area and beyond.

Pedestrians and cyclists will have enhanced transportation options with pedestrian/bicycle separated and shared routes. Rest stops will be located south of Prospect Road in four locations.

Access to the Bus Rapid Transit will be more convenient for motorists, as five park-n-ride facilities are proposed along the Corridor near the intersections of Cherry, Prospect, Swallow, Horsetooth, and Harmony.

Performance

Performance of a plan, such as for Mason Street Transportation Corridor, can be measured in many ways. Some are direct, such as costs or potential users. Others are less direct. The following chapter presents some of the performance results associated with the project.

Capital Costs

Costs are an important measure of transit and bicycle/pedestrian improvements. The initial capital or construction costs are those costs associated with the construction of the project. The operating costs are the annual costs to operate and maintain the facility.

The capital construction cost estimates were developed from current prevailing unit cost estimates, the proposed concept plan, and preliminary discussions with project stakeholders regarding amenity improvements. The magnitude of costs depends on the phasing option selected and the mode (transit or bike and pedestrian). For purposes of clarity, the construction costs were broken into the following four major categories:

- major capital construction (roadway, earth work, intersection improvements, storm water mitigation, and major structures),
- bid items (based on a percentage of the major capital construction),
- contingencies (construction contingencies, engineering design, and construction management), and
- right-of-way acquisition

The major capital construction quantities were developed from area estimates using the proposed concept plan and 1999/2000 unit costs. The bid item and contingency percentages were developed on recent Major Investment Studies (MIS) completed within the area, visual observations of the current site conditions, and engineering experience. These MIS studies present a range of values

Capital Costs		
	Low ($M)	High ($M)
Bicycle/Pedestrian Improvements		
Harmony to Prospect	6.7	6.7
Prospect to Pitkin	0.3	0.3
Pitkin to Cherry	0.7	0.7
Harmony to Fossil Creek	1.5	1.5
Total/Bicycle Pedestrian Improvements	9.2	9.2
Bicycle/Pedestrian Railroad Crossings		
CSU Vet Hospital to University Mall	0.5	0.5
Foothills Mall Connection	1.5	1.5
Troutman Connection	2.0	2.0
Total Railroad Crossings	4.0	4.0
Transit Improvements		
Cherry to Laurel [1]	6.6	9.2
Laurel to Prospect [2]	3.8	5.1
Prospect to Drake [3]	8.7	8.7
Drake to Horsetooth	2.0	4.5
Horsetooth to Harmony	2.4	2.4
South of Harmony	7.7	7.7
Vehicles and Maintenance Facility	6.3	6.3
Total Transit	37.5	43.9
Total Capital Costs	**50.7**	**57.1**

[1] Low range of costs assumes two-way operation of Mason and Howes Streets and the associated signal mast/head installation. High range assumes one-way operation and additional expenses for replacement of removed parking along Mason Street in a downtown parking structure. High range also includes costs for enhanced bike/ped lighting and a physical barrier between northbound Mason Street traffic and southbound contra-flow bike lanes. Both high and low ranges include costs for reconfiguration, striping, and signing of intersections.

[2] The difference in low and high range costs in this section are expenses and amenities associated with potential alignments through the CSU campus. High range includes replacement of removed parking in a structure.

[3] High range of costs assumes realignment of the Mason/Horsetooth/McClelland intersection and associated right-of-way purchase.

based on a nationwide evaluation of published construction projects. Actual values are selected based on the Mason Street Corridor project specific conditions (urban construction). Unit costs for right-of-way acquisition were selected from current property values, available MIS information, and area calculations from the developed concept plan.

The estimated range for total construction of the bike/pedestrian facilities along the Mason Street Transportation Corridor is approximately $9 million (2000 dollars). Adding the BNSF Railroad crossings between CSU Veterinarian Hospital and the University Mall, the Foothills Mall Connection, and the Troutman Connection will increase the bicycle and pedestrian costs by $4 million to a total of $13 million. This estimate includes all improvements proposed on the concept plan and covers all major construction and standard site improvements. As the corridor develops, additional site improvements (additional landscaping, art and other visual amenities) can be constructed. In addition improved bicycle and pedestrian connections along perpendicular arterials that should be constructed in order to maximize utilization are not included in the above budget. They should be constructed to enhance connectivity.

For the proposed transit system, the estimated range of total construction costs is between 37 and 44 million dollars. This estimate includes all improvements proposed on the developed concept plan and covers all major construction and standard site improvements. Like the bike/pedestrian improvements, as the system becomes further developed, additional amenities may be added to meet future operational and character requirements.

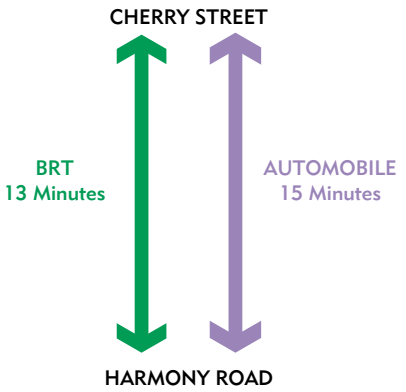
Operation and Maintenance Costs

Operations and maintenance (O&M) costs are largely a function of the revenue hours of operation for the system. While the Mason Street Bus Rapid Transit (BRT) will provide service seven days a week, the number of buses varies. More buses will run during peak travel times, requiring additional O&M costs accordingly. Over 19,000 revenue service hours will be necessary in the year 2020 to operate the Mason BRT. Total annual transit, bicycle, and pedestrian operating and maintenance costs are approximately $1.3 million. However, redundant service on College Avenue will likely be replaced by the Mason BRT, so O&M costs related to the existing Transfort Route 1 service ($500,000) can be subtracted to provide net O&M costs for the Mason BRT service.

This results in a net O&M increase of $800,000. Furthermore it is estimated that there will be a $500,000 fare box recovery for a net annual O&M increase of $300,000. This is a minor cost associated with the accompanying benefits.

Operating and Maintenance Costs (Year 2000 Dollars)	
$ 1,300,000	Annual O&M Costs
$ -500,000	Removal of Redundant College Avenue Service
$ -500,000	Farebox Recovery ($0.50 per trip)
$ 300,000	Net Annual O&M Cost

Travel Times



Travel Time

Current bus service must operate in the congested College Avenue corridor. With a dedicated busway, transit from the south transit center to downtown, including stops for passenger loadings will operate faster than vehicular travel on College Avenue between Harmony and downtown in the year 2020.

Transit Ridership

Ridership estimates for the Mason BRT were generated using the Mason Street Multi-Modal Travel Model developed specifically for this project. A total of

9,500 riders (3,600 new riders) are expected on the Mason BRT each weekday. This amounts to about 300 riders in the peak direction during the highest (i.e., rush) hours each day on the segment between Drake Road and Prospect Road. In effect, each of the six northbound buses in the morning and evening peaks hour will be filled beyond their seated capacity.

Park-and-Ride Lots

While most patrons currently and in the future will walk to the bus, about 20 percent of the daily riders on the Mason BRT are expected to access the system via automobile. Longer commute trips, for example, are particularly well-suited to auto access. Those accessing the system in this manner will either be dropped off at or near a bus stop (Kiss-n-Ride), drive to a Park-and-Ride (PnR) lot, or carpool to a PnR lot.

To accommodate the PnR needs, a total of between 650 and 825 parking spaces will be necessary along the corridor. As expected, modeling efforts revealed the highest demand for parking to be at the South Transit Center. Between 500 and 600 parking spaces will be necessary at the south end of the corridor. Another 50 to 100 additional parking spaces are needed in the middle of the corridor in the vicinity of Drake Road and Mason Street. At the North Transit Center, a demand of 100-125 spaces is predicted. Parking requirements at a proposed off-campus site near Prospect Road serving CSU students will be a function of its design, pricing, and operation by CSU planning and parking policies.

Bicycle Usage

On average, bike trips currently account for about three percent of the overall trips made in the City of Fort Collins. The number is much higher for trips to and from the CSU campus. In fact, a fall 1999 count indicated over 12,000 bicycle trips are made to and from the CSU main campus each day when school is in session. Many of these trips occur on and across busy streets that offer little protection from automobile travel.

With the implementation of the bicycle facility along the length of the Mason Street Transportation Corridor connecting the current and future east-west trails, bicycle and other forms of non-motorized travel are anticipated to increase. In the year 2020, over 3,000 daily bike trips are expected to occur on segments of the Mason Street bikeway. The safety benefits to these travelers is considerable because the Mason bikeway will provide undercrossings at major east-west arterials and minimize bicycle/automobile conflicts.

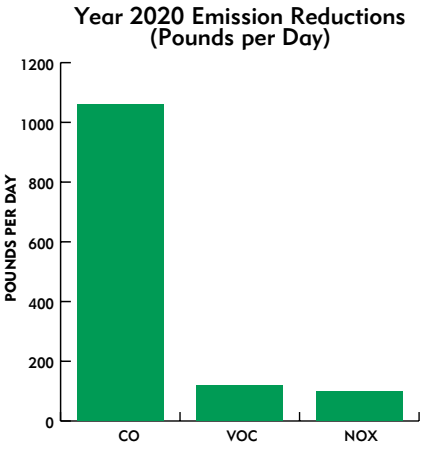
BNSF Railroad along Mason Street in Fort Collins' downtown Civic Center.

Congestion Delay

Vehicle miles of travel are reduced by over 26,000 miles per day with a corresponding decrease of 1,200 vehicle hours of travel and congestion delay in the year 2020. The congestion delay figure equates to about 1,600 person hours of delay reduced, allowing more free time for people to spend somewhere other than in traffic.

Congestion Mitigation

As transit riders take advantage of the many benefits of the Mason Street BRT, their actions will reduce the number of vehicles on the city's roadways, benefiting the entire transportation system. The new weekday transit riders resulting from implementation of the Mason BRT equal 2,800 vehicles per day that would be removed from College Avenue and its parallel corridors. Furthermore, implementation of the Mason BRT would allow those buses on College Avenue to be redirected to Mason Street, thus freeing up capacity on the congested College Avenue. It should be noted, however, that as ridership increases on the Mason BRT and those passengers vacate College Avenue, trips along Lemay and Shields will likely redirect back to College and not result in a net decrease in College congestion.



Natural Environment

Preliminary investigations did not identify significant adverse environmental impacts from the proposed corridor improvements. The City will consult with the Division of Wildlife regarding potential impacts to wildlife species, and meet the requirements of the U.S. Army Corps of Engineers for any impacts to wetlands or Waters of the U.S. The project is expected to modestly improve air quality conditions in the Fort Collins region, and not appreciably affect ambient noise conditions along the Corridor.

Air Quality

The City of Fort Collins is a non-attainment area for the pollutant carbon monoxide, which is a product of combustion and is primarily caused by automobile travel. Projects that reduce carbon monoxide emissions include those that improve vehicle speeds (i.e., reduce traffic congestion delay) and/or reduce vehicle miles of travel. The Mason BRT has both effects by providing mobility options for travelers switching to transit and thus freeing up roadway capacity. Carbon monoxide (CO), a winter pollution problem, is reduced by half a ton per day through the implementation of the Mason BRT.

Another pollutant growing in importance in Northern Colorado is ozone, due to its increased summertime levels in recent years. Ozone is formed in the presence of sunlight through the combination of volatile organic compounds (VOC) and nitrogen oxides (NOX), both automobile emissions. Although modest, the Mason BRT reduces the level of emissions of both of these emissions, providing safer and cleaner air for the City's citizens.

The Mason BRT will minimize carbon monoxide emissions by reducing traffic congestion delay.

What kind of service can I expect?

The Mason BRT will provide reliable, on-time transportation in clean, modern, non-polluting buses operating on a dedicated busway through the heart of the city. The simple fact that the busway is separated from other roadways means you and your bus will not be impeded by the effects of traffic congestion.

The system has been designed to serve the needs of the traveling public, so it will run when you travel. Typical weekday service will occur from early morning to late evening. More buses will be used during rush hour to accommodate the additional demand. Ten minute headways are planned for the peak periods, meaning that a bus will arrive at your stop in your direction of travel six times an hour. Enhanced weekend and evening service will be coordinated with special events at CSU, Old Town, and other locations.

Several stops will be placed strategically along the corridor to maximize access to activity centers and to facilitate transfers to and from crosstown routes. As Transfort buses currently do, the Mason BRT buses will accommodate those arriving on bicycles. Park-and-ride lots located on the corridor will allow for additional access options to Transfort's system. Park-and-ride lots tend to serve commuter trips more than others. As such, one can envision commuters from Loveland or Greeley coming to work in the Mason corridor by driving to a park-and-ride lot at the south end of the BRT line and taking transit for the most congested part of their journey.

Furthermore, the service will be all-weather. Transfort's experience has shown that transit ridership spikes during times of foul weather. Many of the bus stops will be outfitted with covered shelters. Low platform buses means that there will be no need to step up into the vehicle, so access will be simple and seamless.

Because the Mason BRT's full implementation may be several years away, exact fares are difficult to predict. However, transit riders can expect them to be in line with current bus fares, adjusted over time for inflation.

Why can't we run cars down the transit way?

During the public participation and lead team process, a number of individuals asked why could we not put cars or maybe high-occupancy vehicles down the transit corridor. This issue was examined in great detail. The analysis indicated that neither cars nor high occupancy vehicles would be permitted along the Transitway for the following reasons:

1. **BNSF Acceptance:** Given that the Mason Street Transportation Corridor will utilize the Burlington Northern Santa Fe Railroad right-of-way, it will be necessary for the Railroad to agree to the modes and design of the corridor. Whereas they have been accepting of the transit, bicycle and pedestrian uses based on the concept plan, automobile travel significantly changes the character and safety aspects of the corridor. BNSF acceptance is not likely and pursuing automobile usage could jeopardize the overall planning effort.
2. **Cost and Property Impacts:** The Bus Rapid Transitway as currently designed is a 24 foot paved strip that would be accommodated within the available 35 foot right-of-way. This design would therefore have minimum impacts to adjacent properties and would not require buildings acquisitions. If the transit corridor were converted to automobile use, it would be necessary to increase the roadway width and flair out the intersections to accommodate turn lanes. In numerous locations, this would require the acquisition of adjacent property and buildings and could increase the overall cost of the project by millions of dollars.
3. **East-West Arterial Impacts:** The proposed Bus Rapid Transit traffic control at the arterial intersections is a signalized intersection. The intersection will be coordinated with the future upgraded signal system. The green indicator for the Bus Rapid Transit would only occur every ten minutes with very short cycle lengths. In the event that automobiles were permitted on the corridor, the frequency of signal allocation for the corridor would be every 90 to 110 seconds and would require significant higher side street green time to accommodate the higher through volume and left turn phases. This change would have a dramatic negative impact on the east-west arterial travel times.
4. **Federal Transit Administration Funding:** The Mason Street Transportation Corridor as proposed might be available for FTA New Start funding, in which

the City could receive federal grants to build the corridor of $40 million dollars or more. If the proposed corridor were also used for automobiles, the Bus Rapid Transit New Start grant would not be available and the City would have to pick up the full cost of the project.

5. **Impacts to Transit Travel Time:** The attractiveness of transit is directly correlated to transit travel time compared to automobile travel time. With the Mason Street Transportation Corridor as proposed, it will be faster to travel the length of the corridor on a dedicated Transitway, versus traveling by automobile along a congested College corridor. If automobiles were permitted along the corridor, the strategic advantage of a higher speed Bus Rapid Transit would be lost and transit ridership would be significantly impacted.
6. **Noise and Air Quality Impacts:** If automobiles were to utilize the Mason Street Transportation Corridor, vehicular traffic would increase noise and air emissions and impact adjacent development.

Why don't we take cars off of existing Mason?

During the public participation, a number of individuals liked the concept of a Bus Rapid Transit corridor and asked why do we not take cars off of existing Mason. From the very beginning of the project, the City has stated that automobile traffic would remain on existing Mason. Automobile access to serve existing businesses and parking facilities is critical to the overall corridor.

Who rides transit?

Anybody and everybody rides transit. Recent studies by the City have shown that Transfort riders represent a cross-section of the general public. Women are slightly more inclined to ride the bus than men, and students make up the largest single group of users.

CSU plays a key role in the City's transit formula. The university is centrally located in the city and the corridor, parking is limited on campus, and transit is a low-cost transportation option for students. If all of the students currently riding transit suddenly switched to cars, the effects on the roadway system would be dramatic. Maintaining transit viability for students is imperative to congestion relief. About 75 percent of transit riders are students. Over 60 percent of the trips currently taken on Transfort buses are for travel directly between home and school made by students.

People make lots of trips for many reasons. What markets and trip types will the Mason BRT serve?

The Mason corridor is unique in that it connects several of the city's major activity centers with residential areas along the route and throughout the city. College Avenue congestion is bad now and will worsen in the future as growth and traffic increase. In fact, the very traffic that brings economic opportunity to the corridor may very well be the same traffic in the future that strangles the corridor from its full economic potential.

Enhancing transportation capacity along the corridor is a critical step towards maintaining its economic vitality. Businesses all along the corridor will benefit due to the increased accessibility. As the corridor matures, many businesses will likely open storefronts along the Mason busway, further enhancing their opportunity to attract patrons. Other businesses may locate in the transit-oriented Enhanced Development Areas under development as part of the Mason Street Transportation Corridor Master Plan.

Transit is especially adept at capturing the regularly scheduled commuter and school trips. It also performs well for flexible, discretionary trips such as shopping, recreation, eating, and so forth. Workers and students will have increased opportunity to take midday trips to restaurants and stores without spending their lunch hour in traffic or looking for a parking space. Special events service is also planned so that weekend and evening travelers have enhanced mobility options.

If additional person-carrying capacity provided by the Mason BRT is a good thing, is more capacity even better?

Sure. In fact, the Mason corridor has been designed to accommodate greater carrying capacity as the city grows and the corridor matures. The system is flexible. As travel demands increase, additional buses can be added during the peak period and other times. Articulated buses with higher capacities can be used. Preservation of the route as a multi-modal transportation corridor means that future uses could include light rail and perhaps even intercity passenger rail to Denver and other cities.

Capacity is measured as the number of persons the system can carry in an hour's time in one direction past a given point. In this way, it can be compared to other transportation systems, such as roadways. The key issue to keep in mind is flexibility. Transit capacity will increase along the corridor as demand warrants. The initial service and fleet requirements were sized to meet anticipated demand in the year 2020.

Initial Mason BRT between 5 about 10 percent more person-carrying capacity in the peak hour and peak direction along the length of the Mason Street/College Avenue corridor with 10 minute headways and 40-person buses. With longer buses and shorter headways, the BRT could further increase person carrying capacity in the peak hour and direction. Future light rail and passenger rail configurations could carry even more.

North/south access is fine. But what if I want to travel east-west?

The City is currently evaluating route changes to the Transfort Bus System. One option is to operate Transfort on an east/west and north/south grid throughout the city, and have full transfer capability with the Mason BRT. Buses will arrive at stops in a coordinated fashion in order to minimize transfer wait times.

Will the Mason Street BRT be environmentally friendly?

The Mason BRT offers a number of environmental benefits, including air quality, fuel consumption, and water quality.

As the city continues to be impacted by air quality regulations associated with its nonattainment status, the situation will grow worse as growth brings more traffic and more congestion onto the city's roads. Since vehicle miles of travel increase and travel speeds decrease correspondingly, automobile-related emissions will go up. Transit is an attractive answer to the smog caused by automobile pollutants. More people in buses and fewer vehicles on the road have the compounding effects of reducing both congestion and emissions.

A related environmental benefit is reduced motor vehicle fuel consumption due to increased transit ridership. In fact, over 350,000 gallons of fuel per year will be saved with implementation of the Mason BRT.

Water quality benefits as well with the implementation of the Mason BRT. Fewer vehicles on the road means less motor vehicle pollutant runoff (e.g., oil, gas) in our streams and rivers.

Why should we build the Mason Street BRT if we have to support it?

One of the questions raised at some of the open houses and workshops is why should the City build the Mason Street Transit element when it is recognized that transit service needs to be subsidized annually.

What is often not recognized is that through the General Fund the City currently

subsidizes many different things. As an example, in response to growth and development in the downtown area, the City of Fort Collins, Larimer County and the Downtown Development Authority are building downtown parking which costs approximately $10,000 per space.

The current monthly parking pass for one of these spaces is $36, which basically only offsets the operating costs of the parking structure. Total operating and maintenance costs are estimated at $78 per space per month. When considering the debt financing of a $10,000 parking space over 20 years at five percent, the additional monthly cost is $65 for a total cost of debt financing, operations and maintenance of $143 per month per space. With a monthly parking fee of $36 per month, the subsidy per space per month is $107, or $97 per user per month.

With an estimated $1,100,000 transit operations and maintenance cost and 3,600 new daily riders generating a fare box recovery of $500,000 for a net deficit of $800,000, the monthly transit rider subsidy will be about $40 per user. This transit subsidy is significantly less than the cost to provide downtown parking.

What's the final word? Why would I take transit instead of drive a car?

It is impractical to think that the Mason BRT will negate the need to own a car today or in the foreseeable future. Our society is dominated by automobile transportation. Transit isn't an attractive option in some instances; it doesn't go everywhere all the time. It is not always a practical alternative to the automobile.

On the other hand, the Mason Street BRT should be considered a viable transportation option for a city like Fort Collins that is growing faster than the necessary roadway infrastructure improvements. The top ten reasons for choosing transit are:

1. You will have reliable, all-weather service unaffected by traffic congestion.
2. You won't need to spend time and money searching for a parking space.
3. You can do something good for the environment.
4. Riders will pay a reasonable fare for transportation service.
5. People might live closer to their work as transit-oriented developments become a reality.
6. Commuters will likely spend less time on a bus than in an auto for a comparable rush hour trip along the corridor.
7. Workers and students could spend their lunch time shopping and eating in other parts of the corridor.
8. Transit riders will benefit the motoring public by reducing the number of vehicles on the roads, thereby reducing traffic congestion.
9. You can access numerous employment, commercial/retail, recreational, and special events activities along the corridor.
10. You may just meet some friendly faces.

Implementation

Whereas the previous chapters of the Mason Street Transportation Corridor Master Plan address what the plan looks like, how it operates, and how it will perform, this chapter defines how to implement the plan and the next steps.

There are four primary elements of the implementation strategy for implementing the plan:

- Funding—how will the plan be paid for?
- Phasing—what parts of the plan should be constructed first?
- Railroad interface—what are the next steps necessary between the railroad and the city?
- Land use policy framework—what changes should be made to city land use policies and regulations?

Each of these elements is described in the pages that follow.

Funding

There are two types of costs which require funding: capital costs, which are the costs to construct the corridor improvements, and annual operating and maintenance costs. The funds earmarked to the Mason Street Transportation Corridor from the Building Community Choices are for capital costs only and are not to be used for operations and maintenance.

Capital Cost Funding

The Building Community Choices ballot language for the Mason Street Transportation Corridor states:

> *"Phase 1 is the engineering/design studies and acquisition of rights-of-way. Phase 2 is the construction of a bike and pedestrian way from Prospect Road to Harmony Road. Public transit would be added, as funding is available."*

Currently, the City has approximately $7 million dollars available from Building Community Choices. At a minimum, this $7 million dollars will be adequate to construct the bike and pedestrian way from Prospect to Harmony Road as stipulated in the ballot language.

The total capital costs estimate, however, for this project is between $50 and $57 million, which results in an overall shortfall of between $43 and $50 million. One potential funding source for the capital cost is through the Federal Transit Administration (FTA) New Start funding. The FTA has grants available to communities, such as the City of Fort Collins, for the construction of new start transit corridors.

The benefit of these grants is that they are on a 20/80 formula, where the local community provides a 20 percent share and the FTA provides the remaining 80 percent share. The FTA New Start funds are also available for bicycle and pedestrian improvements that are integrated into the design of the New Start Transit line. Therefore, the $7 million proposed for the construction of the bicycle and pedestrian component would be acceptable as the local share for the FTA New Start funds.

Based on a total capital cost of between $50 and $57 million, the local 20 percent share required from the City will be between $10 and $11.4 million. With a current local share availability of $7 million from Building Community Choices, the local shortfall would be between $3.2 and $4.4 million for completing the entire Mason Street Transportation Corridor project.

There are a number of potential sources for the remaining local match, from both public sector and public-private sector sources.

Capital Funding		
	Low ($M)	High ($M)
Capital Costs	50.7	57.7
Federal Transit Administration New Start Grant	40.5	45.7
Fort Collins Match	10.2	11.4
Current Local Funding		
Building Community Choices	7	7
Fort Collins Shortfall	3.2	4.4

Public Sector Sources

Local (City) transportation funding is currently accomplished through a ¼-cent sales tax. This tax generates approximately $5 million annually and is allocated across various transportation projects. An extension of this sales tax with a higher share allocated to the Mason Street Transportation Corridor would generate significant revenues which could be leveraged into capital cost funding. For example, the dedication of $1 to $2 million annually from this sales tax would generate sufficient revenue to fund $5 to $10 million in capital costs. This would likely more than cover the anticipated shortfall ($3.2 to $4.4 million) in the local match requirements associated with federal funding.

There are other public sources of funding which may be available for use in the Corridor, however, they would more likely be associated with individual projects or enhanced development areas. These sources include the following:

- federal and state housing and community development funds (Community Development Block Grants, Low Income Housing Tax Credits, Historic Rehabilitation Tax Credits),
- low-interest loan funds, and
- enterprise zones (tax credits for private investment).

With all of these other potential public sources, projects within the Corridor will compete with other development projects for funding.

Public-Private Sector Sources

Public-private partnerships are essential in implementing the vision for any transportation corridor. The Mason Street Corridor offers a unique opportunity for the public and private sectors to realize mutual benefits—social, environmental and economic. Transit supporting development not only makes sense as an effective means of managing growth, but it is market-responsive and enhances and maintains its value.

For these reasons, the public and private sectors have equally important roles in realizing the vision for the Corridor articulated in the Master Plan. As discussed, the City's investment in the Corridor will be substantial (at least $7 million). Reliance on public-private sources for the remainder of the shortfall should be expected, and even required. A strategic public investment such as the Corridor should be expected to leverage private investment. For every $1 of public investment, $5 to $10 in private investment should be anticipated. Given the expected growth of the Corridor over the next 20 years, new private development and redevelopment in the Corridor should exceed $300 million—a 6:1 ratio of private to public investment.

Additional local factors which support and encourage private investment in the Corridor include:

- shift in demographic characteristics,
- pressure for convenience among consumers,
- increased lease rates and land prices,
- convenient access,
- increased pedestrian traffic and exposure,
- employee productivity, and
- improved quality of life.

Potential public-private initiatives which could be used to assist in funding the

anticipated local shortfall including the options discussed below:

Tax Increment Financing (TIF) is the capture of property and sales taxes from new development, over and above a designated base year revenue amount. The incremental increase in tax revenues is diverted to a special fund and used for district investments. A TIF district can be established through an urban renewal authority or a downtown development authority. Locally, TIF was used to fund improvements in Old Town Fort Collins.

Based on projected growth in the Corridor over the next 20 years, significant property and sales tax increment revenues could be generated for transportation improvements. These tax increment revenues are estimated as follows:

Property Tax Increment

Projected New Development:	3.0 M SF
Value of New Development:	$300M
Estimated Assessed Value:	$100M
Estimated Annual Property Tax @ 80 mills:	$7M
Supportable Capital Improvements Financing:	$20 to $25M

Sales Tax Increment

Projected New Retail Development:	800,000 SF
Retail Sales from New Development:	$160M
Estimated Annual Sales Tax @ 3.0%:	$4.8M
Supportable Capital Improvements Financing:	$15 to $20M

Even if a TIF district is not used for the Corridor, the figures above indicate the level of new tax revenues that could be captured and potentially dedicated to funding for transportation improvements.

A General Improvement District (GID) could be formed within the Corridor to generate revenues for capital improvements and/or operations and maintenance costs. The GID could impose a property tax mill levy and issue bonds to finance improvements. Currently, a GID is being formed by the Cities of Westminster and Thornton to assist in the financing of new interchanges along the I-25 North Corridor.

Based on projected growth in the Corridor over the next 20 years, a GID could generate between $500,000 to $1 million annually with a relatively low mill levy increase (5 to 10 mills):

GID Revenues

Projected New Development:	3.0 million SF
Value of New Development:	$300M
Estimated Assessed Value:	$100M
Estimated Annual Property Tax @:	
5 mills	$500K
10 mills	$1.0M
Supportable Capital Improvements Financing @:	
5 mills	$1.5M
10 mills	$3.0M

It is important to note that a GID, similar to TIF, is designed to capture tax revenues from new development. Therefore, it is unlikely that both mechanisms would be used within the Corridor.

As with public sector sources, there are other public-private initiatives which could provide additional funding support within the Corridor. These are most likely to be associated with individual projects or enhanced development areas. These sources include the following:

- sales tax sharing (the "rebate" of future sales tax revenues to a developer to offset development infrastructure costs),
- joint development (City/private sector share development risk),
- strategic partners (contributions from major stakeholders),
- density bonuses (for encouraged transit supporting uses),
- land donation/write-down (City donates land or reduces price to assist project development budget),
- development fee rebates/waivers (to reduce project development costs),
- land trades (to encourage more appropriate land uses in Corridor),

Potential Local Funding Match

Capital Costs	Low ($M)	High ($M)
Fort Collins Shortfall	3.2	4.4
Potential Public-Private Sources: 1/4-Cent Sales Tax Extension	5.0	10.0
Tax Increment Financing (Property Tax)	20.0	25.0
Tax Increment Financing (Sales Tax)	15.0	20.0
General Improvement District (GID)	1.5	3.0

- bond financing (or credit enhancement), and
- lending pools (local lenders share risk of financing transit supporting development).

Operations and Maintenance Funding

Costs for operating the Bus Rapid Transit and maintaining the bicycle, pedestrian and transit improvements are estimated at approximately $1.3 million per year. It is estimated that $500,000 per year will be collected through the fare box based on transit projections, which leaves an operations and maintenance shortfall of $800,000 per year.

It should further be noted that as the Bus Rapid Transit plan is implemented, the College Avenue Corridor bus may be eliminated and that those funds of $500,000 could be directed toward the Mason transit service. This would result in a future year new dollars operation and maintenance cost of $300,000. These funds would need to be included in the overall general funding for transportation or a separate funding structure for the Mason Street Transportation Corridor.

The distinctive character and appearance of the Corridor, as well as its ability to be a special "place" within Fort Collins, will likely present unique challenges associated with maintenance, management, and marketing. Funding mechanisms to cover the expected shortfall in operations and maintenance costs should therefore be designed to address multiple objectives.

One of the best mechanisms for accomplishing multiple objectives such as these is the **Business Improvement District** (BID)**.** A BID is a funding mechanism which would be appropriate for long-term management, maintenance, and marketing activities in the Corridor. The BID could also form a special improvement district within the BID and issue bonds for capital improvements. Assessments on commercial property (based on land area, frontage, etc.) are the key revenue source for the BID. The anticipated $300,000 shortfall in Corridor operations and maintenance could be addressed in the BID's budget, along with funding for management and marketing activities. The resulting budget amount would be equitably divided among Corridor property owners based on the chosen assessment formula.

If management and marketing were not critical activities, a simpler mechanism may be a **Local Maintenance District**. Operating similarly to a BID, the district's budget would be equitably divided among Corridor property owners based on an assessment formula (land area, frontage, etc.).

Under either the BID or Local Maintenance District, the anticipated operations and management shortfall could be sufficiently offset.

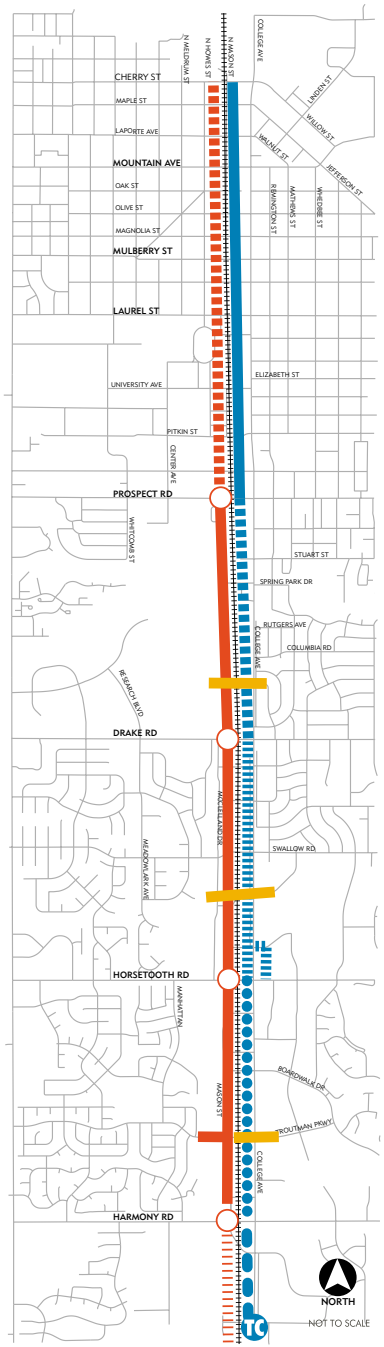
Potential Annual Local Funding

O&M Costs	Low ($M)	High ($M)
Potential Public-Private Sources: Diversion of College Bus Route Funds	0.5	0.5
Business Improvement District (BID)	0.5	1.0
Local Maintenance District	0.5	1.0

Phasing Plan

The ultimate project phasing plan for all of the elements of the Mason Street Transportation Corridor is contingent upon current funding, availability of FTA New Start funding and additional local funding sources.

The overall cost of the project is estimated between $50.7 and $57.1 million. Currently, the City has approximately $7 million dollars available from Building Community Choices. At a minimum, this $7 million dollars will be adequate to construct the bike and pedestrian way from Prospect Road to Harmony Road as stipulated in the ballot language. This would include the arterial undercrossings at Prospect, Drake and Horsetooth Roads. The $7 million would not be sufficient to include the undercross-ing at Harmony Road. The current funding would, however, tie into CSU, and with minor striping and signing could result in a north-south route through campus which would connect with Mason and Laurel Streets. With signalization at this intersection, there



Bike/Pedestrian Prioritization
- Phase 1
- Phase 2
- Phase 3
- Bike/Ped RR Crossings

Transit Prioritization
- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5

Grade Separation

would be the opportunity to travel from the Poudre River Trail to Harmony Road.

Subsequent bicycle/pedestrian phases might either be the Master Plan improvements for CSU and the downtown, which would possibly include the conversion of Mason and Howes Streets to two-way operations. Continuation of the bicycle/pedestrian path to the south is not currently necessary, but would be an important subsequent phase when the Fossil Creek Trail is extended to the BNSF Railroad.

One major area of concern raised at the public meetings is the Troutman Parkway pedestrian/bicycle under crossing. Because of the complexity of this improvement and the resulting high costs, this improvement could not be included in the initial phase. Two additional BNSF Railroad crossings, an undercrossing at Foothills Parkway, and an at-grade crossing between the Colorado State Natural Resources Research Center and the University Mall require funding subsequent to the Phase 2 Prospect Road to Harmony Road improvements.

The first phase transit priority would be to bring in the Mason/College corridor transit into the CSU campus and continue down Mason Street through the downtown. In subsequent phases, the College Avenue route would be incrementally relocated to the Mason Street Transportation Corridor, beginning at Drake Road and then subsequently to Horsetooth Road and then Harmony Road.

Railroad Interface

The use of the BNSF Railroad's right-of-way warrants long term commitment and agreements from both the BNSF and the City. Initially, the City and the BNSF should enter into a Memorandum of Understanding of the Mason Street Transportation Corridor. This agreement should describe the proposed use for the easement, safety, responsibilities, and general phasing.

As detailed engineering construction plans are prepared, close working cooperation is essential for the overall success of the project.

Land Use Policy Framework

Community leaders in Fort Collins have long recognized that transportation and land use decisions should be mutually supportive. Transportation decisions, such as those represented by this Master Plan for the Mason Street Transportation Corridor, need to be made in a

manner that is consistent with, and supportive of the City's land use goals. Similarly, land use decisions regarding form and character must ensure that the transportation system will support many modes of travel. The Mason Street Transportation Corridor is an integral part of the City's strategies in City Plan for accomplishing these objectives.

The Conceptual Plan has identified a vision and a conceptual plan that sets forth the preferred transportation network and infrastructure requirements. An important question now is how best to implement land use patterns in the corridor that will support and enable the transportation objectives outlined in this plan. For this reason, this section of the Plan outlines a series of steps to be taken to ensure that land use activities in the corridor are supportive of and enhance multi-modal transportation opportunities.

This section identifies a variety of changes in city ordinances, regulations, policies, and strategies that need to be considered to make the Mason Street Transportation Corridor Plan a reality. It draws on a diagnosis of the City's Land Use Code, a review of City Plan, examination of City policies regarding land use patterns, review and evaluation of current market conditions, and consultation with city staff. A number of changes to the City's Land Use Code should be considered, including establishment of a new Overlay Zone, strategic zoning changes, and amendments to district and development regulations. Each of these recommended changes is described briefly below.

Establish Enhanced Development Areas

The Master Plan identifies a number of areas in the vicinity of future transit stops that can capitalize on transportation activities along the corridor. Some of these standards might include:

- Promote pedestrian/transit-oriented uses (such as restaurants, retail shops, etc.) around transit centers;
- Restrict inappropriate commercial uses now permitted in commercial zones along corridor;
- Allow residential over commercial without density or use reductions; and
- Enforce and/or strengthen existing ordinances related to corridor appearance and maintenance.

These areas, identified as "Enhanced Development Areas", have the potential for mixed-use development activity. In most cases, these areas have some level of development or redevelopment potential that could be realized in the near term, as well as an enhanced potential in the longer term as the Mason Street Transportation Corridor improvements are implemented. These could be implemented through establishment of an Overlay Zone in the city's Land Development Code that would apply as development and redevelopment occurs in these areas. The Overlay Zone would recognize the special development opportunities in these areas, and incorporate supplementary standards that result in a development pattern that is more pedestrian and transit-oriented. Many of these sites include the opportunity for infill development. City Council has identified the South College Avenue/Mason Street Corridor and the Downtown as targeted infill areas, within which the city may play a role in promoting infill and redevelopment. This role may range from technical assistance, development streamlining, and financial incentives, to focused public investment in infrastructure. The degree of city support and participation will likely depend on the degree of public benefit that results from a particular infill project.

Encourage More Residential Development in the Corridor

One of the key strategies for implementing the Plan is to encourage residential development at strategic locations in the corridor, particularly near planned transit stops and in activity centers. New housing will help create opportunities for people to live, work, and shop in the corridor. The City should consider amending the Civic Center Master Plan to encourage mid-rise (3-5 stories) as opposed to single-story residential in the downtown area. In addition, housing should be encouraged to be incorporated as part of any mixed-use development in the corridor, with density bonuses and/or provisions that allow housing to be included along with retail and em-

How Does the Mason Street Transportation Corridor Relate to City Plan?

A Vision For Our Community

City Plan is the City of Fort Collins Comprehensive Plan. Adopted in 1997, City Plan illustrates how we as a community envision Fort Collins growing over the next 20 years. The essence of the vision is that our community will have a compact land use pattern, consisting of a primary, vital downtown and other supporting districts that serve as focal points and centers of activity. The vision recognizes the importance of the automobile as a means of transportation, but begins to shift the balance towards a future in which different modes of transportation are also used. The vision is built on the foundation that "…new development and redevelopment will be organized and woven into a compact pattern that is conducive to pedestrian, bicycle, and public transit travel."

A core element of City Plan is a set of community goals, intended to direct the course of action to be followed over time to mark progress toward the vision. These include the following goals that strongly support the objectives of the Mason Street Transportation Corridor:

- Our community will develop a transportation system incorporating many modes of travel.
- Our community's growth will be structured in a compact pattern that facilitates pedestrian, bicycle, and transit travel.
- The bicycle will be a viable transportation choice for residents and visitors.
- Our community will have a comprehensive public transit system.

Structure Plan—A Blueprint Towards Our Desired Future

The City Structure Plan is a physical diagram of the desired form and structure of our community. It illustrates a city made up of 4 kinds of places: Neighborhoods, Districts, Corridors, and Edges. Key principles of the Structure Plan include an interconnected transit system, designed to provide for high-frequency transit service along major travel corridors; provision for multiple means of travel; and new Activity Centers in transit-served areas.

Principles and Policies—the "Nuts and Bolts"

The final element of City Plan is the Principles and Policies that define ways to make the desired future happen. They answer the questions, "How do we do it?" and "What will it look like?" The Principles and Policies element includes numerous supporting references to the Mason Street Corridor. The most significant of these is Enhanced Travel Corridors, to be established strategically within the city as specialized corridors that specifically and solely promote walking, the use of mass transit, and bicycling. The role of these designated corridors is to provide high frequency/high efficiency travel opportunities linking major activity centers in the city. The Mason Street Transportation Corridor is identified on the Structure Plan as one of the primary Enhanced Travel Corridors.

ployment uses. Other incentives, such as allowing approval of residential development as Type-1 (administrative hearing) rather than requiring Type-2 (Planning and Zoning Board approval), should be considered to streamline the approval process.

Zoning Changes to Support Laurel/ Mason Enhanced Development Area

In order to enhance the development opportunities for the Laurel/Mason Street area, the development pattern that currently exists from College to Laurel should be extended further to the west. The intent is to encourage development of additional mixed-use buildings with residential and/or office above shops on the ground level. In order to accomplish this, commercial zoning should be extended to the west with buffering/design controls.

Parking Requirements

In certain targeted areas within 1/8-mile of transit stops, a reduction in residential parking requirements could be considered to encourage and support a mixed-use development pattern. This might include a modest reduction in

residential parking requirements, the counting of on-street parking toward requirements, or credit for shared parking for uses with parking demands that occur at different times of the day. A flexible approach is encouraged, to allow for the market to play a role in determining when parking requirements can be reduced without adversely affecting the economic viability of a development. In addition, this approach will need to be coordinated with a City strategy to address parking requirements downtown.

Community Amenities

In order to create an attractive urban environment for land uses along the corridor, the City's Development Code should incorporate requirements for community amenities, such as special paving treatments, street furniture, signage, and public art. Additionally, the city should consider cost sharing for some facilities.

Corridor Aesthetics

In order to improve appearance of buildings along the Corridor, the City should consider requiring landscaping, attractive fencing, lighting, and uniform signage upon development or redevelopment, or possibly over time prior to redevelopment through reverse amortization (that is, in a specified time, existing uses must bring their landscaping, fencing, etc. up to new Corridor standards).

Special efforts should be made to ensure that the appearance of buildings presents a high-quality image along the corridor, particularly where the rears of buildings are adjacent to the Corridor. Standards should encourage or require rear entries/building breaks to create opportunities for access to the corridor. Additionally, standards should require screening of trash service areas and loading docks, and prohibit outdoor storage.

Inconsistent City Development Policies

The City should identify and address inconsistent policies that create development impediments, such as utility easement requirements that conflict with build-to setback lines in the downtown, or costly separate tap requirements for secondary residential dwellings that discourages development of accessory housing units.

Next Steps

With the City Council approval of the Mason Street Transportation Corridor Master Plan, the City has a number of additional tasks to meet the initial objective of the Building Community Choices ballot vote and to keep the momentum of the project moving:

- **Bicycle/Pedestrian Engineering Design and Construction of Phase II Improvements—**With a decision by the City Council for approval of the Mason Street Transportation Corridor Master Plan and approval of the Phase 2 bicycle and pedestrian improvements, the City will need to prepare or retain consulting services for the preparation of the bicycle and pedestrian engineering plans for construction.
- **Mason/Howes One-way/Two-way Decision—**The Mason Street Transportation Corridor Master Plan identified two options for automobile, transit and bicycle operations in the downtown. Option 1 retained the current one-way street system of Mason and Howes, where transit travels north on Mason Street and south on Howes Street. Option 2 converts Mason and Howes to two way operations. Prior to FTA funding application, it will be necessary to select a preferred alternative for development of a preferred transit plan.
- **Regulatory Actions—**In order to maintain and increase the vitality of the Mason Street Transportation Corridor, the City should consider and implement a number of actions:
  - Establish Enhanced Development Areas, possibly through creation of an overlay zone.
  - Reduce residential parking requirements in development areas proximate to transit stops/stations.
  - Encourage more residential development in the corridor.
  - Modify development code to incorporate requirements for community amenities.
  - Streamline City development process.
  - Increases signage allowance on rear of buildings.
- **Funding—**The City of Fort Collins needs to pursue FTA New Start

Future Implementation			
Actions	**Triggers**	**Timeline**	**Responsible Parties**
Engineering Design of Bicycle and Pedestrian Improvements from Prospect Road to Harmony Road.	Master Plan Adoption	1 year	Transportation
One-way/Two-way Mason/Howes Decision	Prior to Transit Funding Application or funding of Phase II bicycle improvement	6 months-3 years	Transportation
Environmental Documentation	Master Plan Adoption	6 months	Transportation/ Natural Resources
Transit Funding Application	Master Plan Adoption	6 months	Transportation Planning/Transfort
Construction of Bicycle and Pedestrian Improvments from Prospect Road to Harmony Road	Completion of Engineering Design	1-4 years	Engineering
Enhanced Development Areas	Transit Funding Application	12-18 months	Planning
Mason Howes Improvements	Phase I Transit or Phase II Bicycle	3-5 years	Transportation

funds. This effort includes the development of a funding action plan, retaining a lobbyist for seeking funding and overall responsiveness to FTA requirements. The funding plan should also identify local match for capital cost improvements and identification of ongoing funding for operations and maintenance.

- Environmental Documentation—Federal funding will require the City to complete environmental documentation for the Corridor. Environmental studies should be conducted as early as possible for demonstrating compliance with the National Environmental Policy Act, as part of project readiness to FTA.