Mountain Line

Long Range Transit Plan

Final Report

July 2012

NELSON
NYGAARD

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1 INTRODUCTION

WHY DEVELOP A LONG-RANGE TRANSIT PLAN?

The Mountain Line Long-Range Transit plan (LRTP) is a 30-year plan designed to help meet Missoula's goals of providing safe and efficient transportation services.[1] The LRTP will help the Missoula Urban Transportation District (MUTD)[2] achieve the following goals outlined in the MUTD 2010-2014 Transit Development Plan:

- Significantly increase the use of transit
- Improve transportation options, thus reducing single occupancy vehicle dependence
- Create strong incentives for using modes of transportation that reduce traffic congestion and improve community health
- Build a network of partnerships dedicated to reducing vehicle miles traveled

As the valley floors reach their development limits, there is increasing pressure to build in Missoula's floodplains and on hillsides. Almost 83% of the area population resides within the Missoula urban area; however, the greatest rate of population increase over the past 14 years has occurred outside the urban area of the County. There is a desire to align development patterns in a way that makes efficient use of the existing transportation system, minimizes the future financial burden to operate and maintain the transportation system (including the transit system), reduces reliance on single-occupancy vehicle travel, and improves quality of life for Missoulians.

This report takes stock of Mountain Line's current conditions, assesses future indicators of demand and finance, and identifies long-term goals, policies, and service design alternatives that best match community goals for mobility and land use. The LRTP recommends projects, strategies, and funding options to improve transit quality and delivery for the Missoula region. Since all transit trips begin with walking or biking, the LRTP also considers important pedestrian and bicycle linkages to local and regional transit services and identifies ways to improve accessibility. The LRTP recommends a heightened level of coordination for multimodal investments in Missoula under which pedestrian, bicycle, and transit investments are made simultaneously to optimize benefits in the city's most important mobility corridors.

The LRTP is developed in coordination with the Mountain Line Comprehensive Operations Analysis (COA) (2012) and the Missoula Streetcar Feasibility Study (2012).

How Transit Supports Community Plans

Transportation is not an end in itself; rather it is a means to support broader community goals and activity. As such, the value of transit should be evaluated not solely on transportation metrics, but also on how well it uses limited transit resources to support broader community goals around economy, environment, human health and wellness, and social equity.

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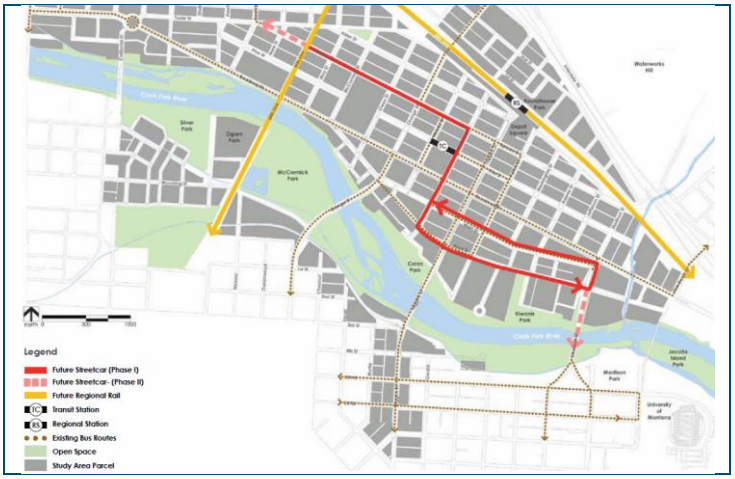
[1] The LRTP was developed alongside the 2012 Mountain Line Comprehensive Operational Analysis (COA). The COA covers the 2012-2017 timeframe; the LRTP covers the 2018-2040 timeframe.

[22] Mountain Line is the brand name for MUTD transit service.

A number of planning processes completed in recent years in Missoula guide the direction of the LRTP by identifying growth management, health, economic development, and transportation goals for the region. These community-wide efforts have established a vision for Missoula to focus new growth in the city center and ensure a multi-modal approach to transportation options.

- **Envision Missoula (2008):** Envision Missoula and the Missoula Planning Summit gathered feedback on community preferences for several growth scenarios. Residents generally supported the Focus Inward growth scenario that seeks to focus growth in the urban core. The Focus Inward scenario prioritized by the community considers only one Multi-Modal Corridor from Lolo to the Montana Rail Link Apex located in downtown Missoula, and concentrates the remainder of investment into a densely developed "In-town Mobility District."



Envision Missoula *focus inward* land use and transportation map.
Source: City of Missoula Downtown Plan (2009)

- **Five Valleys Regional Transit Study (2008):** The Five Valleys Regional Transit Study was funded by the Montana Department of Transportation to assess existing and future intercity bus transit needs for the Five Valleys area, including portions of Missoula, Granite, Lake, Mineral, Ravalli, and Sanders Counties. The recommendations include development of a rideshare and vanpool program to provide service to residents in areas not served by transit and implementation of bus service from Lolo to Missoula and Hamilton to Missoula.
- **Missoula Greater Downtown Master Plan (2009):** The Downtown Master Plan was adopted unanimously by the Missoula City Council in August 2009. The plan envisions a balanced-center development with a mix of residential and commercial uses to reduce automobile trips and improve economic development. The transit element of the plan advocates for local circulators and commuter rail to supplement the existing Mountain Line system. A streetcar is proposed to link major destinations in downtown and potentially provide future connections to the University and Airport. It envisions a commuter rail line connecting downtown to the region along the I-90 and Highway 93 corridors.
- **Missoula Active Transportation Plan (MATP) (2011):** The MATP was developed in 2011 to construct and promote high quality active transportation facilities to address a variety of community goals, including health, economic development, congestion mitigation, air quality, and reduced household transportation costs. The MATP complements goals outlined in the *focus inward* growth scenario noted above, which seeks to manage travel demand by a mix of uses in one highly concentrated downtown area. The plan also calls for an integrated transit/pedestrian/biking system where

residents can safely walk to bus stations and cyclists can load their bikes on transit to facilitate multi-modal trips.

This LRTP will help the Missoula region realize the economic, environmental, and health-related benefits of an efficient transit system. Planning efforts conducted in Missoula over the past several years have been supportive of transit, including the f*ocus inward* strategy that emerged from the *Envision Missoula* process and other planning efforts that have called for expanded transit, including a downtown circulator, improved service on existing Mountain Line routes, and long-distance rail or express bus transit from other areas. The LRTP provides a funding plan, policy framework, and service delivery plan to improve transit delivery in the region.

How Transit Benefits Missoula

While public transportation's primary purpose is to provide mobility options to residents, visitors, and employees in the region, it also delivers community benefits not often recognized in discussion about transit. The following are ways that transit helps deliver benefits to the community and its citizens.

Transit provides mobility options for everyone

Transit provides mobility options for commute, shopping, and other trips. People of all ages and abilities use public transit in Missoula. According to the 2008 Missoula Long Range Transportation Plan Survey, residents aged 18-29 account for the largest percentage of transit riders (12.5%), while seniors account for the second largest percentage at 5.8%. The same survey reports that transit is being primarily used for commute and education trips (33.4% and 33.1% respectively). Of the 33.4% of riders that commute to work, people earning less than $20,000 per year accounted for the largest portion of the population using public transit (approximately 20% of total commuters). The next largest portion of the population was people earning between $75,000 and $95,000 annually (approximately 13% of total commuters).

Compact development has environmental benefits

Numerous studies demonstrate that people living in compact communities where they can easily walk to basic services and recreation drive less than people living in more "sprawling" areas. Higher residential and employment densities and integrated land uses are associated with lower per capita miles driven.[3] Studies show that people living in compact neighborhoods drive 40-50% less miles annually than their suburban neighbors. A report by the Urban Land Institute explores the connection between driving and CO2 emissions and conservatively assumes that a 100% reduction in miles driven is associated with a 90% reduction in CO2 emissions.[4]

Transit helps meet public health goals

Public transit contributes to a healthy community by making the air cleaner and providing an affordable mode of transport that people can walk to and from. Numerous studies note the positive physical and mental improvements of people living in transit-served areas. Studies in the *American Journal of Health Promotion* found that body mass index ratings tend to decline significantly with greater subway and bus stop density, higher population density, and more

[3] Eran Leck, "The Impact of Urban Form on Travel Behavior: A Meta-Analysis," *Berkeley Planning Journal* 19 (2006), 37-59.

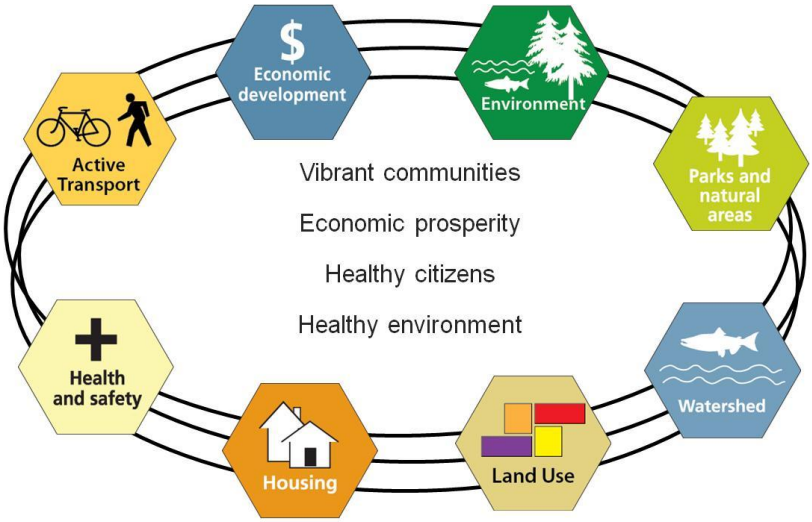
[4] Red Ewing, et al. *Growing Cooler: The Evidence on Urban Development and Climate Change.* (Washington D.C.: Urban Land Institute, 2007).

mixed land use in their neighborhood.[5] A study in the *American Journal of Preventative Medicine* found that, on average, transit users walk 19 minutes per day, bringing people well on their way to meeting the U.S. Surgeon General's recommendation of 30 or more minutes of daily exercise.[6]

Transit makes Missoula more affordable

According to research by the Center for Neighborhood Technology (CNT), households in cities where jobs and services are readily accessible by transit are less impacted by gas price increases. Access to transit helps reduce household transportation costs, saving families money and making Missoula a more affordable place to live.

CNT research shows that transportation costs can range from consuming 15% of household income in compact, accessible neighborhoods (ideally) to well over 28% of household income in locations with auto-oriented land use patterns and limited access to transportation. A CNT study found that people who earn $45,000 per year (a "typical" income in the Missoula region for a household with 2.46 people is $42,200[7]) with one car who are heavy transit users versus those with one car who do not use transit spend on average 6% less per year on transportation. Households in the Missoula region spend considerably more than 15% of income on transportation. The CNT Housing and Transportation Affordability Index shows that residents in downtown Missoula tend to spend approximately 30% of income on transportation, while residents in outlying areas tend to spend over 35% of income on transportation.[8]



Transit boosts Missoula's economy and creates jobs

If Missoula residents are able to spend less of their income on transportation, they have more money to spend on other things. Because so much of what is spent on transportation immediately leaves the state, money not spent on transportation gets spent on sectors of the economy that

[5] Andrew Rundle, Ana V. Diez Roux, Lance M. Freeman, Douglas Miller, Kathryn M. Neckerman and Christopher C. Weiss (2007), "The Urban Built Environment And Obesity In New York City: A Multilevel Analysis," American Journal of Health Promotion, Vol. 21, pp. 326-334. And Reid Ewing, et al. (2003), "Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity," American Journal of Health Promotion, Vol. 18, No. 1Sept/Oct. 2003, pp. 47-57.

[6] Besser, et al. (2005). "Walking to Public Transit: Steps to Help Meet Physical Activity Recommendations." *Journal of Preventative Medicine, Vol 29, 4.*

[7] Center for Neighborhood Technology. H+T Affordability Index. Transportation Costs % Income. http://htaindex.cnt.org/map/

[8] Center for Neighborhood Technology. H+T Affordability Index. Transportation Costs % Income. http://htaindex.cnt.org/map/

have a much larger local multiplier effect.[9] With gas prices at $3.62 a gallon, [10] local residents could save millions of dollars collectively by increasing spending power on local goods and services. A CNT study showed that households living in a compact neighborhood well-served by transit in Portland, Oregon saved an average of $2,230 per year on transportation costs, equaling a combined increase in spending power of nearly $5 million that can be directed towards local businesses.[11] If similar metrics held true in Missoula, such household savings could result in roughly one half to one million dollars in local reinvestment annually.

Operating transit services and investing in transit and street infrastructure also creates local jobs. A recent report by Smart Growth America analyzed stimulus-funded infrastructure projects and found that each dollar spent on public transportation created 31% more jobs and resulted in 70% more job hours than a dollar spent building roads. Furthermore, investments in improving/maintaining existing streets generated 16% more jobs per dollar than building new roads.[12]

THE CHANGING TRANSIT LANDSCAPE

Over the coming years and decades, local, national, and global forces will influence the demand for transit and Mountain Line's ability and approach to deliver transportation services to the Missoula region. These interrelated forces include: the price of energy, climate change, a changing and uncertain economic landscape, changing demographics and generational preferences for housing and mobility, and rapid technological innovation.

- **Energy:** The price of gasoline has risen dramatically since the early 1990s and projections indicate prices will continue to rise. According to the U.S. Energy Information Administration, the average price per gallon is projected to rise to more than $6 by 2035. The increased price of gas increases the cost of single-occupancy vehicle travel and has been shown to have a direct correlation with increases in transit ridership, assuming transit is able to deliver sufficient capacity and service quality. At the same time, rising oil prices will also increase the operating costs for Mountain Line. How will Mountain Line react to rising fuel prices and potential increased demand for services? How will a changing climate affect the demand for Mountain Line services and the policy context in which they operate?
- **Climate:** Increasing concerns about climate change as a result of increasing greenhouse gas emissions are driving policy and individual travel behavior. The transportation sector in Missoula accounts for approximately 18% of the area CO2 emissions, an increase of about 12% since 1990.[13] With a projected 20.2% increase in population over the next twenty years, strategies to limit the number of miles driven per capita in Missoula will be an important component of this Long Range Transit Plan.[14] How will Mountain Line

[9] Portland's Green Dividend. http://www.ceosforcities.org/files/PGD%20FINAL.pdf

[10] U.S. Energy Information Administration. (2012). "Gasoline and Fuel Update, U.S. Regular Gasoline Prices, Rocky Mountain." March 19, 2012.

[11] Center for Neighborhood Technology. (2010) "Penny Wise Pound Fuelish: New Measures of Housing and Transportation Affordability." March 2010. http://www.cnt.org/repository/pwpf.pdf

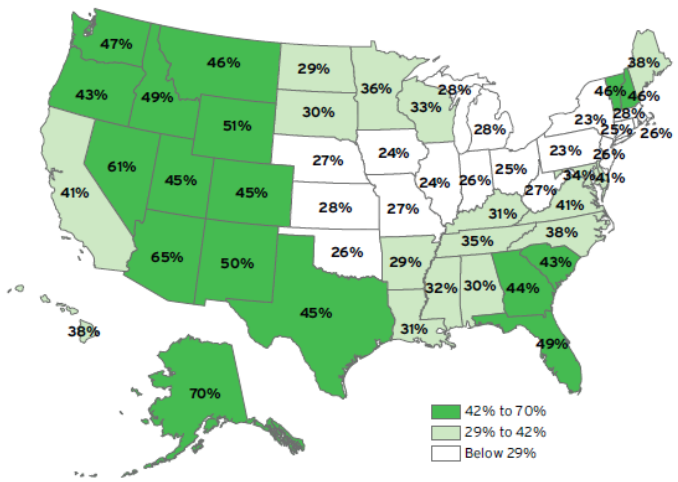
[12] Smart Growth America. (2011). "Recent Lessons from the Stimulus: Transportation Funding and Job Creation." February 2011. http://www.smartgrowthamerica.org/documents/lessons-from-the-stimulus.pdf

[13] Missoula Count, 2004, Missoula Greenhouse Gas Energy Conservation Plan. Resolution 5890.

work with its regional partners to encourage people to choose forms of transportation with lower or no emissions?

- **Economics:** The rising federal debt may put fiscal pressure on the federal government to reduce discretionary spending, which could reduce funding for local transit agencies. According to the U.S. Congressional Budget Office, the federal fiscal outlook is daunting. Rising costs for health care and social security will deplete domestic programs significantly and lead to less available funding for domestic discretionary items such as transportation.[15] How will national and local funding trends affect the availability of funding to deliver and expand Mountain Line transportation services?

Figure 1 Projected Growth in 65+ by State, 2010-2020



Fastest senior growth will occur in intermountain West, Southeast, and Texas.
Source: Brookings Institute, Brookings Analysis of U.S. Census Bureau Population projections data

- **Population:** As noted above, the population in the Missoula region is projected to increase by an estimated 20.2% over the next twenty years.[16] At the same time, the proportion of older adults in the region is expected to increase as the baby boom generation ages and life expectancies increase. Montana is among the states with the highest projected growth rate of seniors (46% between 2010 and 2020 – see Figure 1). Generally, older populations are less mobile and drive less than other adults, but may also have reservations about riding public transit.[17] How will these demographic forces play out in the region and shape the demand for transit?
- **Generational Preference:** Young people are increasingly making lifestyle decisions that are different than their parents. They are trading car ownership for biking, walking, and transit use. A Zipcar study reports that 70% of Millennials would drive less than they currently do if there were more transportation options available, such as public transportation, car sharing, or convenient carpooling.[18] The ideology of the American dream - owning a home in the suburbs - is being replaced by a desire for mixed-use neighborhoods with easy access to transit, biking, and walking facilities. The National Association of Realtors reports that over half of adults (58%) would prefer to live in a

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[14] Montana Department of Commerce, Census and Economic Information Center.
[15] U.S. Congressional Budget Office, 2011. The Long-Term Budget Outlook. http://www.cbo.gov/sites/default/files/cbofiles/attachments/06-21-Long-Term_Budget_Outlook.pdf
[16] Montana Department of Commerce, Census and Economic Information Center.
[17] Note: The Transportation Needs Assessment in the MUTD FY 2011 Coordination plan identified the need for increased transportation for seniors. Demographically, seniors were identified as the largest growing segment of the population.
[18] "Millennials & Driving: A Survey Commissioned by Zipcar." Zipcar. http://www.slideshare.net/mobile/Zipcar_Inc/millennial-slide-share-final (accessed February 1, 2012).

neighborhood with a mix of housing, stores, and other businesses within easy walking distance.[19] How can Mountain Line deliberately reach the next generation of transit riders?

- **Technology:** Younger generations now relate more to technology and social media than automobiles. It is the new paradigm in social interconnectivity. As such, transportation providers across the nation are using technology to encourage people to use transit and to communicate up to date traveler information. A 2011 national market study reported that 35% of adults in the U.S. own a Smartphone.[20] Social media, Smartphones, and information technology provide an opportunity for Mountain Line to reach more people with up-to-date travel information and encouragement messages. How can Mountain Line capitalize on the trends in technology and generational preference to reach more transit riders and deliver up-to-date traveler information and schedules?

CHALLENGES FOR TRANSIT

Transit – Land Use Connection

The best long range transit plan is a land use plan that guides the development of transit based on clear and measurable goals for desired urban and suburban development patterns. Local and regional accessibility and the availability of travel options strongly influence land use and development patterns.

There is a mutually supportive relationship between land use, access and system integration, and service quality from which community benefits of transit are derived.
Source: Nelson\Nygaard

In any growing city, transit quality is a key criterion for land use development, and yet land use is also a key criterion for transit service. There is a strong correlation between land use density and transit demand. A key objective of this LRTP will be to define a policy framework that ensures quality transit will be available as transit oriented development occurs. (see the "Designing transit-oriented neighborhoods" section below).

To help Mountain Line and its regional partners realize the greatest benefit from limited transit operating and capital resources, this plan identifies a primary transit network (PTN) (a series of routes where Mountain Line will provide high quality service; described in greater detail in Chapter 3). This network should be incorporated in local plans and aligned with plans for mixed-use centers and compact development. Zoning laws will need to be updated to align density thresholds and mixed-use development along all community designated parts of the PTN.

[19] "The 2011 Community Preference Survey." National Association of Realtors. http://www.realtor.org/wps/wcm/connect/a0806b00465fb7babfd0bfce195c5fb4/smart_growth_comm_survey_results_2011.pdf?MOD=AJPERES (accessed February 1, 2012).

[20] Pew Research Center. (2011). "Smartphone Adoption & Usage." Pew Internet & American Life Project. July 11, 2011.

Elements of Transit Demand in Missoula

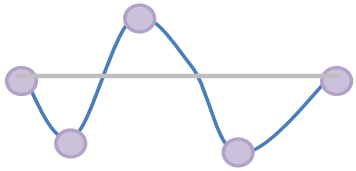
There are a number of key factors that, when measured and planned, help predict how well transit will perform and how useful it will be to local residents. While the success of any system is based on the whole of its parts, these factors are critical when considering how to reap the greatest benefits and achieve desired community outcomes by investing in transit.

Distance

How easy it is to reach residences, businesses, and other destinations using a particular mode of transportation has an important relationship with human travel patterns. The travel demand between two points tends to be inversely related to the ***distance*** between them. Moreover, ensuring that future transit corridors have major activity centers at each endpoint is essential (called *anchors*, discussed in further detail below).

Density

There is a strong correlation between land use ***density*** and transit demand. Residential densities should be at least 7 to 12 units per acre as a minimum threshold for corridors that receive high-frequency transit investments. However, density alone does not predict transit use. Without walkability, a mix of uses, and good transit access, members of households in communities with a high density of population or employment do not drive much less than those in similar but less dense environments. Nevertheless density is the most important factor for allowing more people to live and work near good transit, and for creating a market for a mix of uses within walking distance. While density is a weak predictor of transportation behavior as a primary causal factor, density near transit is an exceedingly important precondition for other factors that reduce driving and promote walking and the use of public transit.



Poor transit geography forces a choice between providing a slow meandering route or one that bypasses key destinations.
Source: TransLink Transit Oriented Communities (2011)

Good transit geography lines up destinations along a reasonably direct corridor.
Source: TransLink Transit Oriented Communities (2011)

Anchors

An efficient transit corridor—and one that will support a primary transit network—connects multiple high demand destinations, or anchors, in a reasonably direct line. By connecting specific ***destination*** points, the transit system will be much more efficient because the major trip attractors will attract riders at each end of the line, creating a steady flow of passengers at all points. This LRTP proposes a primary transit network (see Chapter 3) that was identified based, in part, on the identification of major activity centers relative to strong transit corridors and connections.

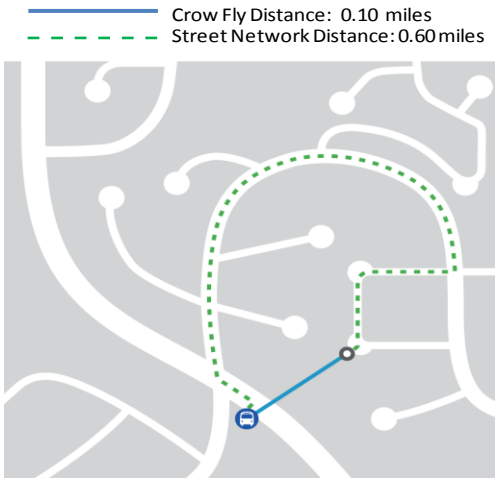
Size

Size must also be considered together with density to determine the overall market that has been organized in a transit-oriented way, which in turn will determine the level of service that can be supported. An isolated, 50-unit apartment building surrounded by surface parking could have a

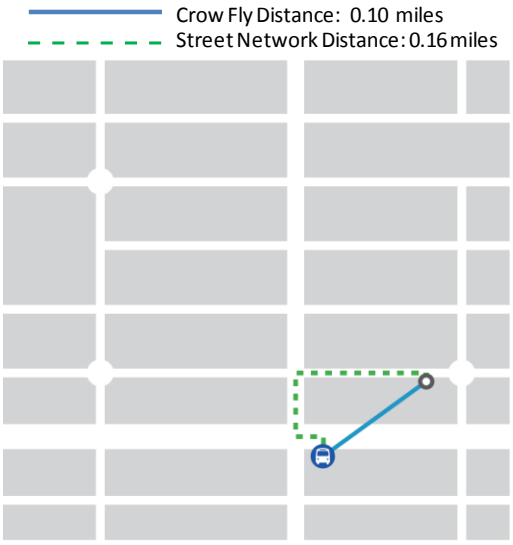
very high density rating, but this alone will not justify transit service. A particular level of service will require a minimum density over a minimum area.

Street design

Research shows that both street connectivity and block length have strong relationships with walking and transit use. Interconnected streets in a grid pattern tend to shorten distances between transit stops and destinations. Neighborhoods where all roads are designed to connect to arterials or collector streets allow transit customers to reach bus stops without walking out of their way and provide more efficient routing options that can support high frequency service. In addition to being important indicators of effective distance to transit, block length and street network connectivity are often used in transportation research to represent ***design quality***. This is because short blocks and well-connected streets contribute to a higher-quality pedestrian experience and pedestrian realm, and they often occur in places where other elements of good design, such as adequate sidewalks, are also in place.



A disconnected street network with long blocks and indirect streets results in long walking distances and less efficient transit operations.
Source: TransLink Transit Oriented Communities (2011)



A well-connected street network enables shorter, more direct walking connections and is easier to serve cost effectively with transit.
Source: TransLink Transit Oriented Communities (2011)

Designing transit-oriented neighborhoods

Transit's success is based only in part on how transit performs. Many of the most critical drivers of personal travel decision making (and hence transit demand) are affected by how communities and neighborhoods are designed and how that impacts individual residents. Community design also contributes to transit demand, particularly as it relates to pedestrian access and safety. People will not use transit if it is difficult or dangerous to access the transit stop. Policies that support safe and accessible streets and mixed land uses must accompany any long range transit plan to ensure that people will be able to access transit easily and feel safe doing so.

A ***diversity*** of land uses (including residential, commercial, industrial, institutional, and recreational uses) also promotes walking and transit ridership and reduces driving. A common way to measure land use diversity in the transportation research is to create an index that assigns a high value to areas with a broad mix of land uses, and a low value to areas with just one use.

When land uses are more mixed, then more daily needs can be met within walking distance, and people walk and take transit more.

Culture

People tend to make transportation choices based on a variety of factors, including cost, travel time, reliability, and dignity. Although younger generations (as described above) may be more dialed into the benefits of taking transit, biking, and walking, the vast majority of people in the Missoula region (76%)[21] still choose to drive alone to work over other more sustainable modes of transportation. Missoula County residents are even more likely to commute in a single-occupied vehicle than City of Missoula residents (89% versus 69% respectively).[22] To make real progress in shifting residents to choose transit for more trips will require a shift in ***culture***. This shift will begin by ensuring Mountain Line and its regional partners provide dependable and accessible transit service at an affordable cost. Incentives, education, and outreach programs will play a crucial role in this culture shift.

Cultural acceptance of any product requires (1) providing an excellent and useful product, (2) using effective marketing to educate people about the value, and (3) entering the product into the social norm (or better yet, making it "hip"). The latter two elements are where many transit providers fall short.

Demand management

Demand management measures that discourage unnecessary auto trips are a key component of increasing transit ridership in support of a long range transit plan. Policies and programs that discourage auto trips (such as paid parking or relaxed parking minimums for new development), will encourage residents of Missoula to ride transit, bike, walk, and carpool.

TRANSIT IN MISSOULA

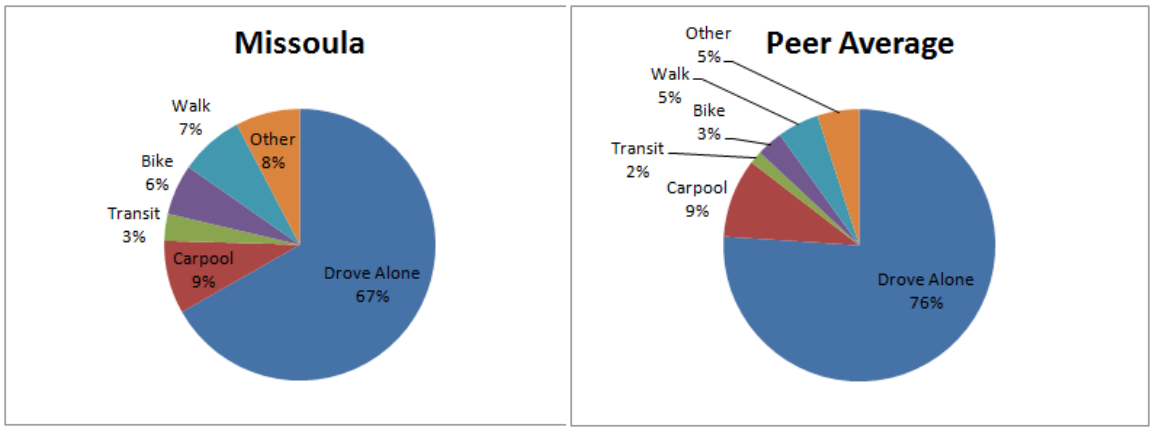
Mountain Line operates fixed-route, paratransit, and senior van service within a 36 square mile area, serving Missoula, East Missoula, Bonner, Target Range, Rattlesnake, and Mullan Road. As of 2010, 3% of residents in the Missoula region used transit to commute to work. In comparison, in peer communities such as Billings, Montana; Cheyenne, Wyoming; Corvallis, Oregon; Grand Junction, Colorado; and Great Falls, Montana, an average of 2% of total commute trips are made by transit (see Figure 2 below). According to information provided by Mountain Line, Missoula fixed route bus ridership has increased by 25% between 2000 and 2011.[23] Nonetheless, there is significant opportunity for the number of transit riders to increase for all types of trips—commute, shopping, and recreation.

[21] 2008 Missoula Long-Range Transportation Plan Survey and 2006 American Community Survey.

[22] 2008 Missoula Long-Range Transportation Plan Survey.

[23] Mountain Line. (2011). Mountain Line Monthly Ridership History. Submitted by Laurie Belcher September 30, 2011.

Figure 2 Comparison of City of Missoula Journey to Work Mode to Peer Cities, 2010[24]



Source: American Community Survey, Journey to Work, 2010

Mountain Line

The Missoula Urban Transportation District (MUTD), or Mountain Line, began operating in 1977 with just three buses. Since then, the agency has grown to operating 17 fixed-route buses operating on 12 routes. The Transportation District is governed by a seven member Board of Directors that are appointed by the City of Missoula and Missoula County. All appointments are for four year periods. Mountain Line's Board oversees the operation, improvement, maintenance, and administration of the MUTD, makes policies for the MUTD, and provides oversight of the MUTD for the benefit of the citizens within the MUTD.

In 2012, Mountain Line provided a record 924,469 rides to customers on fixed-route service. Since 2000, the number of fixed route rides has increased 33%, an average of more than 2% per year. Mountain Line also provided nearly 20,000 on its specialized paratransit and senior van services in 2012 (1,612 per month).

Other Transportation Providers in Missoula

Public transportation is provided by a number of organizations in the Missoula region. A key component of the LRTP will be to ensure that the partners listed in Figure 3 below will be well-coordinated to limit duplication and foster collaboration between agencies. Generally, Mountain Line provides fixed-route and some paratransit transit service to the region; other partners listed below provide on-demand service to the elderly and people with disabilities.

Figure 3 Other Transportation Providers in Missoula

Service Provider	Target Population	Number of People Served	Number of Vehicles	Average Monthly Rides
Missoula Developmental Service	Adults with developmental disabilities and intensive needs in nine group homes and a day	61	19	3,600

[24] Peer cities include Billings, MT; Cheyenne, WY; Corvallis, OR; Grand Junction, CO; and Great Falls, MT and represent the same peers used in the 2012 COA.

Service Provider	Target Population	Number of People Served	Number of Vehicles	Average Monthly Rides
Corporation (MDSC)	services center			
Opportunity Resources, Inc. (ORI)	Individuals who are unable to transport themselves to public transportation because of mobility impairments; ORI also serves the elderly and adults with developmental disabilities	177	16	7,000
ASUM Office of Transportation	ASUM coordinates services with Mountain Line by training users, promoting service, sharing bus stops, and providing paratransit service for Griz Card holders	15,642	Park n' Ride and UDASH systems: two 35 ft buses, one 30 ft bus, one 29 ft bus and two 22 ft buses	32,333
Bitterroot Bus	Provides on-demand bus service in the Hamilton, Corvallis, and Grantsdale areas	n/a	n/a	n/a
Community Medical Center	Services to seniors and adults with disabilities who cannot use Mountain Line's demand responsive Senior Van or Paratransit services, or its regularly scheduled fixed route system	n/a	2	n/a
Missoula Aging Services	Missoula Aging Services (MAS) is the local Area Agency on Aging whose service area encompasses both Missoula and Ravalli Counties	n/a	Missoula Aging Services does not provide transportation services directly; it coordinates and funds transportation services by collaborating with other agencies	n/a
Missoula Ravalli Transportation Management Association (MR TMA)	Provides ride sharing programs, ride matching and scheduling services, and coordination in the development of park & ride facilities	Vanpool: 159 Rideshare: n/a	15	769

For further information on the state of transit service in Missoula, please reference the *Comprehensive Operations Analysis Final Report* that was developed alongside the LRTP. The Final Report provides an overview of the Mountain Line system, current and past ridership and operating statistics, a peer review, a review of plans and projects from several public and private agencies in Missoula County, an overview of the system's goals and objectives, and an analysis of the service area's population and demographic characteristics. It also includes a summary of data collected by Nelson\Nygaard, including survey, ridership, and on-time performance data. Finally,

this Memorandum documents the transportation needs in the community and how outlines how Mountain Line plans to meet those needs.

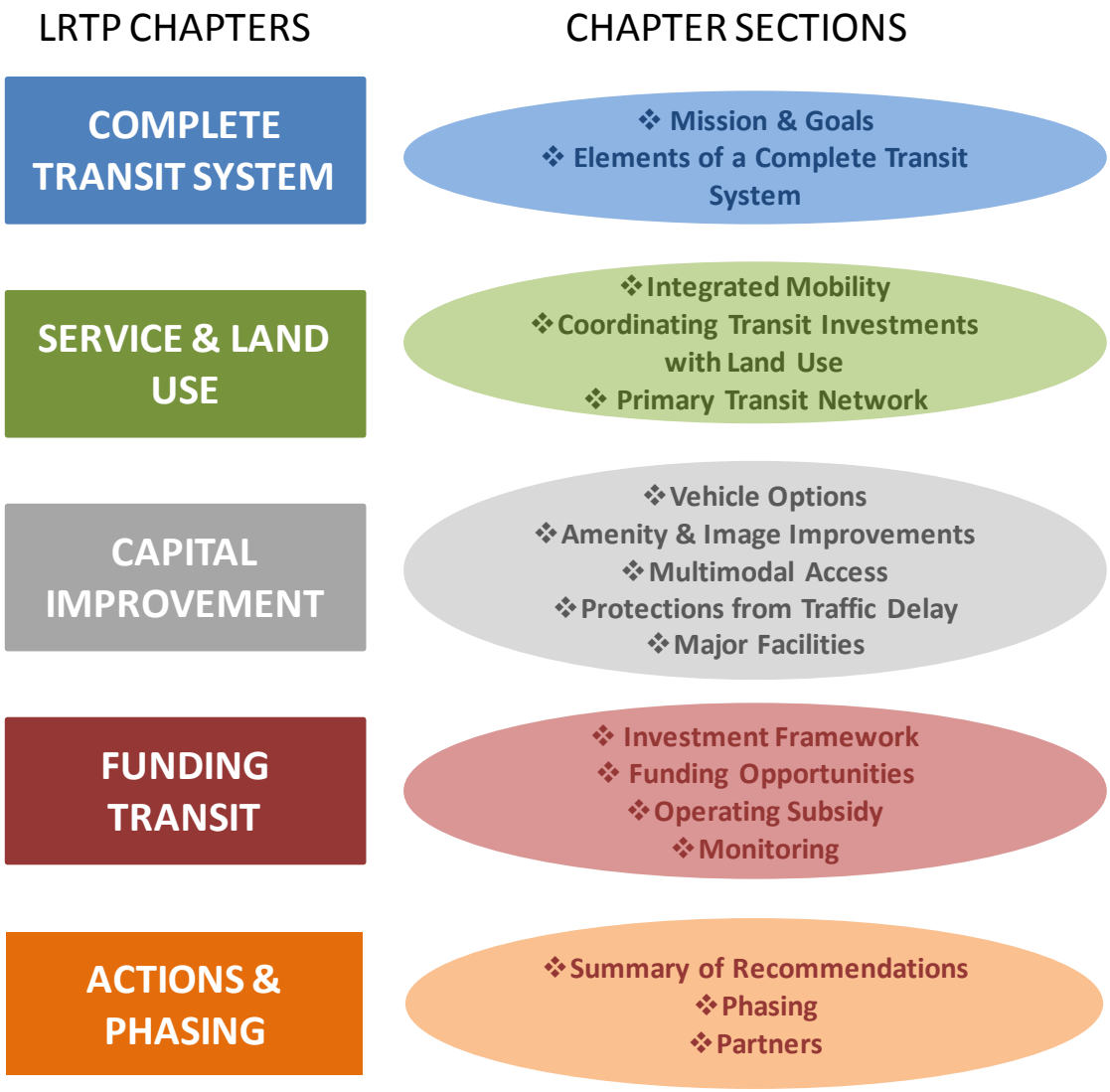
KEY OUTCOMES OF THE LRTP

The LRTP lays out a plan for transit capital, service, and program improvements that can start immediately but may take years to implement in full. The LRTP is intended to achieve the following outcomes for Mountain Line, its partners, and the community:

- **Focus Investment:** Identify key transit corridors to support high ridership that align with community plans for transit oriented development areas
- **Improve Service Quality:** Make transit more competitive with the private auto by enhancing travel time and reliability and improving service in key transit corridors.
- **Foster Community:** Leverage transit investments to support growth management and development goals, enhance placemaking, and achieve environmental goals.
- **Develop and Foster Partnerships:** High quality transit systems require investment from many public and private stakeholders. For Mountain Line to succeed it needs to build and maintain political, financial, capital development, and marketing support from multiple regional partners.
- **Develop a Multimodal System:** Elevate the integration of transit capital development with the expansion of walking and biking infrastructure particularly in priority transit corridors.
- **Provide Education and Outreach:** Develop or enhance education and financial incentive programs that support transit use in Missoula.
- **Monitor Progress:** Create performance measures to help the City monitor LRTP implementation and changes in transit performance levels and quality.
- **Calculate Return on Investment:** Track mode shift, improved health and safety, and reduced emissions to demonstrate return on investment.

WHAT IS IN THE LRTP?

The Missoula LRTP is organized around the five areas of transit investment and policy development shown in the graphic below.



2 BUILDING A COMPLETE TRANSIT SYSTEM

The vision of the Long Range Transit plan (LRTP) is for Mountain Line and its partners to develop a Complete Transit System that supports a broad range of trips for residents, employees, and visitors traveling in the Mountain Line district.

The Complete Transit System concept is used as a framework for describing and organizing service and capital development priorities. The Complete Transit System relies on high quality access and supportive community design. All points of transit access, from a stop in a residential neighborhood to a bus station, will be accessible for people of all abilities. Bicycle facilities—including end of trip facilities, bicycle racks on-board buses, and a safe network of on- and off-street bicycle infrastructure—are also a key component of a Complete Transit System.

To create a Complete Transit System, Mountain Line must collaborate with the City and County of Missoula to implement policies, programs, and investment priorities that result in a system that makes it easy and desirable for people to take transit. This will be accomplished by the implementation of a Primary Transit Network (PTN)—a conceptual network of high-quality, frequent transit routes that connect Missoula residents to jobs, shopping, entertainment, and recreation—backed by a policy and investment framework designed to help the region realize its goals. The PTN reinforces investment where the most passengers will benefit and the City and region will receive the greatest return on investment of limited funds.

MISSION, VISION & GOALS

Our mission is to serve our District with convenient transportation that supports a healthy, vibrant community.

The vision is:

- An urban core system with schedule free service
- A network of partners for seamless regional transportation
- Transportation that is accessible to everyone

To become an agency with a high level of adaptive capacity, Mountain Line must adhere to clear goals and policies to guide its actions with respect to local and regional stakeholders. Spelling out these goals helps Mountain Line and its regional partners to better understand its priorities and opens a dialogue about a shared vision.

In support of the region's broader transportation goals, the LRTP will help guide Mountain Line to develop a Complete Transit System guided by the following draft proposed LRTP goals:

Goal 1 System Expansion: Provide efficient, safe, convenient, and frequent service to priority commercial and residential centers in the community.

Goal 2 Accessibility: Provide a system of transit services that is responsive to the needs of all residents, particularly those for whom transit is a necessity (e.g. youth, seniors, people with disabilities, low income populations, and people without access to an automobile).

Goal 3 Development and Land Use: Expand the transit network to foster transit-oriented development, as defined by community process, and help meet regional sustainability, growth management, and economic development goals.

Goal 4 Environment & Air Quality: Improve air quality and reduce vehicle miles travelled in the Missoula region.

Goal 5 Multimodal Approach: Foster safe and convenient connections between transit, pedestrian, and bicycle facilities.

Goal 6 Transit Experience: Create station areas that provide great community places for people to connect to transit in neighborhoods and commercial districts.

Goal 7 Funding: Balance system implementation with fiscal, operational, and policy constraints.

ELEMENTS OF A COMPLETE TRANSIT SYSTEM

To achieve its goals, Mountain Line should commit to and build a Complete Transit System that puts the passengers first, makes transit convenient, uses transit to build a healthy and wealthy community, and improves transit service and quality through partnerships. This will require Mountain Line to adopt a truly multimodal approach that supports transit users of all abilities to bike, walk, carpool, and take transit; develop information technology that provides riders with up-to-date traveler information; and partner with organizations in the region to develop educational and outreach programs and materials to encourage people to ride transit.

This section outlines the four main components of creating a complete transit system and corresponding guiding principles that will serve Missoula residents and visitors and improve the livability of the Missoula region:

Figure 4 Components of a Complete Transit System & Guiding Principles

Complete Transit System Component	Guiding Principles
Put passengers first	▪ Make transit easy to use ▪ Create a safe, tactile environment for transit passengers ▪ Make transit universally accessible ▪ Make transit comfortable at all points in the trip
Make transit convenient	▪ Provide mobility to a wide range of destinations ▪ Facilitate fast and reliable service ▪ Increase ridership by integrating other modes and making access safe and easy ▪ Invest in service and infrastructure where it can attract the most users
Use transit to build a healthy vibrant community	▪ Make transit facilities central to community gathering places ▪ Increase walking and bicycling to improve health outcomes ▪ Employ best practices in transit-oriented design ▪ Use transit to meet environmental targets ▪ Use energy responsibly

Complete Transit System Component	Guiding Principles
Improve transit service and quality through partnerships[25]	▪ Optimize regional transit service investments ▪ Work with the City and County to maintain fast and reliable operations ▪ Collaborate and share assets ▪ Build political alliances

Put Passengers First

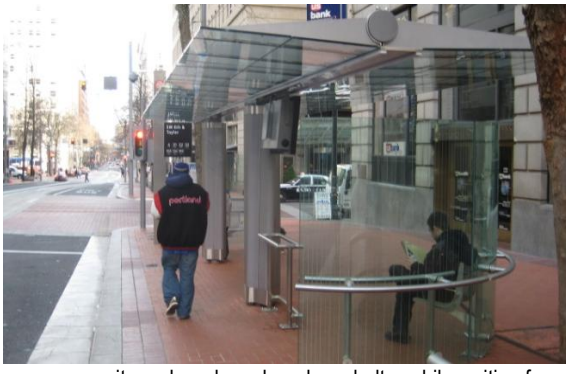
Create facilities that make passengers feel comfortable and dignified

Places where people access, wait for, and transfer between transit routes must be at least comfortable and dignified. However, to elevate this further, Mountain Line should strive to make these great places that are integrated with active, community life. This means including amenities at bus stations and transit centers that include protection from the elements, comfortable seating, ample lighting, and clean facilities both on-board and at stations.

A person's decision to choose transit is highly dependent on their perception of transit being a comfortable, convenient, and dignified experience. Passenger comfort must be attended to both at the transit station and on-board.

A passenger waits for the bus on the side of the road in Flint, Michegan.
Source: Nelson\Nygaard

Waiting on a sidewalk-less curb next to high speed traffic can be an uncomfortable experience: passengers are exposed to the elements, there is nowhere to sit and relax, and there is little protection between the passenger and passing traffic. Alternatively, a more dignified transit experience allows the passenger feels protected from the elements and traffic, secure due to street activity, and comfortable because there is opportunity to sit and relax.



A passenger sits and reads under a bus shelter while waiting for the bus in Portland, Oregon.
Source: Nelson\Nygaard

Create clean and safe facilities

Transit facilities should be open, well-lit, and constantly monitored to ensure the transit experience is comfortable at all hours of the day. Incorporating crime prevention through

[25] Discussed in further detail in Chapter 6 Funding and Performance Monitoring

environmental design (CPTED) principles– also referred to as defensible design – into transit facility design increases both real and perceived safety. These principles include:

- Ensuring spaces are visible to others and well lit
- Delineating public and private space
- Managing access portals
- Ensuring facilities are regularly maintained and cleaned

Make Transit Convenient

Provide service that is frequent, reliable, and useable

A core purpose of transit is to provide frequent, reliable, and useable transit service that links residents and visitors to work, shopping, and entertainment.

Convenient, top-quality transit service connects key destinations in the region with services that meet basic needs critical to transit passengers, such as reliability and frequency. Frequent transit service should be provided in high-demand corridors and is frequent enough that travelers do not need to rely on a schedule. As such, transportation investment should be focused in these key corridors with high frequency service. The idea is that providing frequent, reliable, and easy-to-use transit service to a core set of transit routes is more efficient than spreading resources throughout the region to deliver infrequent transit service to more people. Ideally, frequent transit service provides a minimum of 15 minute or better service for 16 hours per day on weekdays, and 30 minutes or better on weekends.

Provide multimodal access opportunities for all users

The amenity and safety of access to transit has a strong influence on mode choice. Almost all transit trips start and end with a walk or bicycle trip. The pedestrian and cycling environments are critical components of building a complete transit network to ensure the entire transit trip is safe, convenient, and comfortable for all road users. Since Mountain Line does not design, build, or manage the streets it operates on, it is critically important that the agency work closely with the City and County to ensure transit can operate with consistent speed and reliability.

Great transit streets

The pedestrian and bicycle environment is essential to public transit. Every transit trip starts and ends on foot or bike. Improving access to transit can attract new riders, increase ridership among existing passengers, and improve the overall travel experience. In Missoula, which has a strong culture of walking and cycling, it is essential to consider how walking, cycling, and transit can support one another to make alternatives to auto-travel convenient, comfortable, safe, and enjoyable.

To ensure multimodal access for all transit users, many jurisdictions have adopted a Complete Streets policy that requires integration of all modes for all abilities into the streetscape. The Complete Streets organization defines a complete street as one that is “designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street.” Complete streets are important for transit because:

- The pedestrian network serves as the backbone of the transit system. Every transit trip begins and ends as a pedestrian trip. Poorly planned access to bus stops is a *real* barrier for disabled travelers and a *perceived* barrier for all travelers.
- Complete streets encourage multiple organizations and city departments to engage in important discussions about how to implement quality facilities for all street users.

Missoula Complete Streets Policy

In 2009, the City of Missoula adopted a Complete Streets Policy under Resolution 7473 that calls for any new or existing street to be constructed or reconstructed for all modes of travel for citizens of all ages and abilities.

Great transit streets include the following features:

The "Jump" transit route in Boulder, Colorado, provides bicycle racks on buses.
Source: Nelson\Nygaard

- **Active Sidewalks:** Wide sidewalks with engaging street furniture that connect to pedestrian-oriented land uses.
- **Parallel & Connecting Bicycle Facilities:** Integrating bicycles with transit is also essential – both by way of end-of-trip facilities and by way of an integrated bicycle network that connects safely and directly to transit stations.
- **Visible & Safe Crossings:** Pedestrians should feel comfortable crossing the street to access stations/stops and land uses that line a transit street. Intersections should be well-marked and have curb ramps.
- **Managed Speeds:** Signal progressions, raised medians, and pedestrian refuges reduce vehicular speed and make pedestrians feel safe.
- **Clear Linkages to Destinations:** Wayfinding directs pedestrians to transit streets, stations, and stops.
- **Landscaping:** Green features soften hardscapes and provide an inviting place for people to wait for transit.

Universal accessibility

Providing transit services that are universally accessible expands personal mobility, independence, and transportation affordability. When transit facilities are built or reconstructed, discrimination by design must be actively avoided. The following considerations should be made as transit facilities are designed:

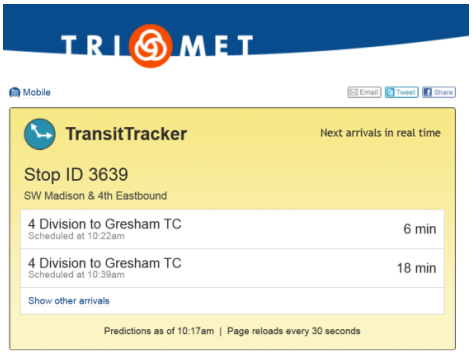
- Minimal level changes in multi-floor facilities and direct access to elevators and escalators, where needed
- Direct ramp access and blended curb/sidewalk transitions at street interface
- Deliberate tactility at conflict zones or abrupt edges to warn the visually impaired of potentially dangerous street environments
- Level boarding to ensure ease of access for people with disabilities or in wheelchairs

- Obstacle-free connections to paratransit vehicles, taxis, pick-up and drop-off points, and park-and-ride lots

Traveler information should be provided in audio, visual, and tactile formats; language and cultural differences should also be considered.

Develop information technology that makes the system transparent and easy to use

People's tendency to ride transit correlates to both their awareness of it and their ability to depend on it. With the emergence of smart phone and transit tracker technologies, a complete transit system provides travelers with multi-modal trip planners (both online and by phone) and up-to-date information on the bus' location. Easy access to this information enables people to plan their schedule around the true schedule of the bus, therefore reducing frustration and viewing transit as a more reliable and efficient mode of travel.



In Portland, Oregon, TriMet's online Transit Tracker provides a real-time arrival schedule for passengers.

Source: TriMet

Use Transit to Build a Vibrant and Healthy Community

Create marketing and outreach materials to educate about transit benefits

Getting people to shift modes from the private automobile to transit can take tremendous regional marketing and outreach efforts. Effective transportation demand management (TDM) marketing programs involve a range of partners within a community, including public officials, community organizations, the private sector, and individuals who support transportation alternatives. Marketing activities include:

- Surveying users and potential users to determine preferences, barriers, and opportunities to change travel behavior
- Educating public officials and businesses about TDM strategies
- Targeting the most likely consumers who would be willing to change their travel patterns (often referred to as *individualized marketing*)
- Promoting the benefits of changing attitudes about alternative modes, such as being healthy, productive, and cost-effective
- Encouraging transit ridership by making transit service more convenient and easy to use

In partnership with Missoula in Motion, Missoula-Ravalli Transportation Management Association, employers across the region, and other partners, Mountain Line has an opportunity to make deliberate effort to reach out to the community to incent, encourage, and educate people to ride transit.

Encourage transit-supportive land uses

How land uses are oriented to the street, how much parking is provided, and the mix of uses within buildings all impacts how effectively transit can serve residents, workers, and visitors in an area. An efficient and effective transit system must be accompanied by transit-supportive land uses. A rich diversity of land uses and housing types—both at the neighborhood and corridor scale—makes for an efficient transit line because transit vehicles are less apt to be crowded in one direction and running empty in the other direction. Diverse land uses also means that the demand for service is likely spread out throughout the day. Land uses that generate trips in the off-peak times (retail, service, residential, entertainment) must be integrated with high-peak uses such as employment sites. With high demand in each direction at all stops, existing transit service is optimized and better service can be justified.

3 SERVICE & LAND USE ELEMENT

MOUNTAIN LINE'S ROLE IN DELIVERING TRANSPORTATION SERVICES

Mountain Line provides a comprehensive set of public transportation services in a 36 square mile service area. The following section discusses Mountain Line's current service offerings followed by opportunities for Mountain Line to consider expansion of its business practices, offering opportunities for a more comprehensive and coordinated approach to delivering mobility services in the Missoula region.

Current Mountain Line Services

Mountain Line is the primary public transportation provider in the Missoula region and provides the following public transportation services:

- **Fixed Route Service:** Mountain Line has provided fixed route service since 1977. Today, they operate 12 fixed-routes that provide 30-minute peak and 60-minute base frequencies. Seventeen vehicles provide service during peak weekday hours and nine vehicles provide service during midday service. Nine vehicles provide regular service on Saturdays. Fixed route buses generally operate between 6:00 AM and 8:00 PM Monday – Friday and 10:00 AM and 6:00 PM on Saturday; no service is provided on Sundays. Fiscal year 2011 was a record breaking year of 865,601 fixed route passenger trips, nearly 74,000 more than the previous fiscal year.
- **ADA Comparable Paratransit Services:** Mountain Line has provided service to ADA eligible passengers since 1991. In 2011, eight paratransit buses carried over 20,000 passengers. Paratransit service is provided weekdays between 6:00 AM and 8:00 PM and on Saturdays between 9:30 AM to 6:00 PM.
- **Senior Van:** Mountain Line's Senior Van started in 2008 and provides curb-to-curb service to persons over the age of 60 and for those with disabilities who have difficulty riding the fixed route bus but do not qualify for paratransit service. Senior Van service is provided weekdays between 8:30 AM and 4:30 PM.
- **Premium Service:** Premium service provides door-to-door (as opposed to curb-to-curb) for both the paratransit and senior van options, upon request. Premium service costs passengers an extra $0.50 per ride.
- **University of Montana Service:** Since September of 1990, the University of Montana Office of Campus Safety has contracted with MUTD to provide subsidized (fare free with ID) transportation on all services to students, faculty, and staff. In addition to using Mountain Line services, the University of Montana provides its own shuttle service to park and ride lots, dorms, and an evening shuttle to downtown.
- **Special Service:** Mountain Line currently contracts with the University of Montana to allow all students, faculty, and staff to use transit services at no charge to them. Mountain Line also works with the Associated Students of the University Office of Transportation to coordinate bus stop use. In addition, Mountain Line offers financial incentives such as reduced fares, free services, and the EZ Pass Program to members of the Missoula Downtown Association, City and County Government employees, and other participants.

Integrated Mobility

Today, Mountain Line provides valued transit service to people of all ages and abilities in the Missoula region. Like many transit providers, Mountain Line is uniquely positioned to help the region adapt to changing transportation demands and to develop a more sustainable and holistic system of transportation services. In many of Missoula's peer regions, transit agencies are acting as regional leaders in expanding and delivering a broad range of mobility services.

- In **Lane County, Oregon** the transit district is the primary agency managing Safe Routes to School and TDM services.
- In **Whatcom County, Washington** the transit authority is partnered with the local university to develop next generation sustainably fueled transit vehicles.
- In **Boulder, Colorado** the Regional Transportation District (RTD) has partnered with *GoBoulder* to develop Boulder's Community Transit Network (CTN). The CTN is colorfully branded and the buses are playfully named HOP, SKIP, JUMP, BOUND, DASH, STAMPEDE and BOLT.

The Boulder Regional Transit District partners with the local transportaion demand management organization, *Go Boulder,* to brand local bus service. The "Hop" bus connects downtown with the University of Colorado.
Source: Nelson\Nygaard

Mountain Line is already a leader in establishing themselves as an agency deeply involved in integrated mobility. The *2011 MUTD Transit Guidelines in Project Development* is a prime example of Mountain Line's commitment to developing a complete system of transportation services. The *Transit Guidelines* document provides guidance for street and intersection design, transit facility design and amenities, and policies that support the integration of land use and transportation.

However, there are many opportunities for Mountain Line to continue to partner and lead in the development and delivery of multimodal transportation services. This could include conducting research, developing education and outreach programs or partnering with other agencies to do so, guiding development and land use patterns, and providing quality transportation services that will escalate the demand for non-single occupied vehicle travel, and improve the quality of life for Missoulians. Mountain Line should continue its current practices and grow its role to:

- Encourage a clean, quiet, safe, and attractive transportation system that harmonizes with the region's neighborhoods and enhances quality of life
- Partner with organizations in Missoula to promote alternative transportation modes such as bicycling, walking, public transit, and telecommuting

- Promote the use of electric vehicles and other low-polluting vehicles, including Neighborhood Electric Vehicles
- Require new development designs that maximize transit potential
- Reduce automobile use by improving transit service and encouraging transit use
- Develop alternative transportation solutions that will help alleviate peak hour congestion

This section outlines specific opportunities for Mountain Line to improve transportation options and affordability, environmental and community health, and economic development opportunities over the next 30 years. These are all opportunities, not recommendations, and should be taken in context of regional governance, the roles of other agencies, and funding availability. Further, a current study is examining the roles of various local agencies, including Mountain Line, related to the delivery of transportation demand management services and marketing in Missoula. Recommendations from that study will provide further direction relative to Mountain Line's role in some activities listed below.

Transit corridor capital program

The Primary Transit Network (PTN) recommended in this plan encourages community planning that results in focused investment in transportation, streetscape, and development where appropriate along key corridors. A Transit Corridor Capital Program could raise funds to make speed and reliability improvements along the PTN corridors.

The PTN should be considered city infrastructure; it is a set of corridors where focused transit investment will coincide with development patterns. As such, the City and County of Missoula have specific interest in dedicating funding to these corridors. The PTN is a component of growth management policy to focus growth inwards and use land and resources in the valley efficiently. Mountain Line could coordinate with the City and County of Missoula to invest in comprehensive improvements that speed up transit, manage congestion, and improve pedestrian and bicycle access to transit along the PTN. Specific bicycle and pedestrian-related amenities should also be eligible for the Transit Corridor Capital Program. These include, but are not limited to: bicycle lockers at key transfer points, bicycle parking at stations and downtown near shopping, raised median to slow traffic and make pedestrians feel safe, and streetscaping including street furniture, plantings, and street lighting. These amenities will help the PTN be an attractive and safe place that people can both enjoy recreationally and use for transportation purposes.

The Transit Corridor Capital Program could be tied to funding mechanisms such as a new or established Business Improvement District mechanism (see Chapter 5 Funding for more details).

Travel options

Some of the most cost effective ways to build transit ridership and create mode shift are not direct service or capital investments, but development of supportive programs that encourage and help people make new travel choices. Mountain Line can help facilitate TDM programs in the Missoula region by partnering with regional TDM organizations to reach out to households, employers, and schools to provide education and incentives to take transit, bike, and walk to school and work. Today, multiple organizations including Mountain Line provide these services in the region. TDM programs in Missoula are currently under evaluation as part of the Missoula Transportation Demand Management Program Review, which will make recommendations to guide TDM

programming, organizational structure, and funding allocation and evaluation processes for the region.[26]

Transit-oriented development liaison

Transit demand is highly sensitive to development patterns. Transit agencies across the U.S. are becoming increasingly involved in the development process to ensure that growth is focused along existing and planned transit routes. Mountain Line should be involved early in the development process and influence siting decisions for transit intensive uses, such as large apartment and employment complexes, to ensure they locate on the identified Primary Transit Network. These efforts will increase the demand for transit and ultimately make Mountain Line services more productive and reduce per passenger subsidy, while also supporting community-wide growth management priorities.

Staff at Mountain Line could help the communication process between the City and County of Missoula, Mountain Line, and private developers by playing an increased role in the development review process and working directly with developers interested in projects that meet transit-oriented development (TOD) standards. TOD design standards should be developed by Mountain Line to aid the process and ensure transit-supportive land uses that ensure effectiveness, efficiency and neighborhood compatibility.

Vanpool Service

Vanpools are an important component of a complete transportation system, serving primarily mid-to long-distance commute markets. A national study conducted by the FDOT Research Center estimates that nearly eight percent of commuters who live more than fifteen miles from work and work for employers with 100+ employees are potential candidates for vanpooling.[27]

In Missoula, vanpool service should be explored in the future as part of an on-going strategy to serve commute trips from outlying areas in the region such as Lolo and also a way to provide commute service within low-density areas in MUTD's district. Miller Creek, for example, is an area that fixed-route transit would have difficulty serving efficiently, due to low residential densities. A dedicated vanpool service to UM and/or downtown Missoula would provide a cost-effective mobility solution to this commute market.

Clean vehicle research and promotion

Reducing transportation-related carbon dioxide emissions is one of Mountain Line's fundamental goals. Clean vehicle technology can help reduce emissions, while at the same time put more money back into the hands of Missoulians. Mountain Line can work to incorporate clean vehicle technology into its own fleet. Western Washington University's (WWU) Vehicle Research Institute is a leader in developing hybrid and electric vehicle technology. Mountain Line has an opportunity to work with WWU to integrate clean vehicle technology into its fixed route and paratransit fleet.

[26] This is intended to illustrate an opportunity for a future expanded role of the transit agency. It in no way presupposes an outcome of the TDM evaluation currently underway.

[27] FDOT Research Center. Vanpool Pricing and Financing Guide. http://www3.cutr.usf.edu/tdm/pdf/Vanpool_values.pdf

Vehicle & bicycle sharing

Car sharing and bicycle sharing are gaining in popularity across the U.S. as people's awareness of the environmental impacts of single-occupancy vehicles increases. Moreover, people are increasingly sensitive to their own expendable income. Biking, walking, and taking transit instead of owning a car leaves more money for other expenses. Car sharing and bicycle sharing provide an economical and flexible option for people to bike and drive when needed. These programs typically work best in dense areas with a mix of residential, employment, and other uses – a vision that is in line with Missoula's plan to focus growth in the downtown urban core.

The idea of a car sharing program is slowly gaining momentum in Missoula. A citizen group has begun the discussion of what it would take to start a car sharing program in downtown Missoula. The group sees car sharing as a way to increase the residential density downtown—as identified by the Envision Missoula process—and allow residents to save money by either living without a car or with one car instead of two.[28] Car sharing can help meet the region's growth management goals, while at the same time put more money back in the pockets of Missoulians.

Bicycle sharing systems allow residents and visitors to conveniently check out bikes at key locations. In many communities, they are being promoted as both an amenity for tourists and a critical component of the transportation system to help people make short trips and errands by bike instead of by car.

Mountain Line has an opportunity to help lead a community-wide effort to assess the demand for and integration of car sharing and bicycle sharing systems in the community. Ultimately, encouraging use of other alternative modes and getting people to reduce auto-reliant modes of transportation increases the demand for transit. Mountain Line can play a key role in advocating for car sharing and bicycle sharing by working with businesses and the local government to rally support.

Coordinating human and social service mobility

Mountain Line is one of six paratransit providers in Missoula that provide service for people with special transportation needs. Current projections predict that the proportion of older adults in the region is expected to increase as the baby boom generation ages and life expectancies increase. Montana is among the states with the highest projected growth rate of seniors (a 46% increase between 2010 and 2020). Increased demand for ADA paratransit and paratransit service for the elderly will require heightened coordination between the human and social service transportation providers in the region. Mountain line can play a key role coordinating and expanding its current efforts to:

1. Providing shared services, such as insurance, maintenance, and scheduling and dispatch
2. Providing driver training using federal operating funds
3. Coordinating vehicle sharing between partners to ensure vans are operating at capacity; the benefit is reduced demand for paratransit service or new revenue streams to offset the cost

[28] Missoulian (2011). "Group Interested in Car Share Program for Missoula." December 25, 2011. http://missoulian.com/news/local/group-interested-in-car-share-program-for-missoula/article_86515994-2e8d-11e1-9dc3-001871e3ce6c.html

4. Providing travel training to help people (generally the elderly) who could ride fixed-route service. This often has a huge return on investment because it offsets demand for more expensive paratransit service.

COORDINATING TRANSIT INVESTMENTS WITH LAND USE

The Primary Transit Network

The Primary Transit Network (PTN) provides a policy framework for transit and supportive infrastructure investments, while at the same time providing a policy framework for the City and County of Missoula to implement transit-supportive land uses and development investment along the PTN. This synergy between transit investment and land use policy is an essential component of any transit system to ensure an efficient and well-used transit system.

The PTN is supported by other important transit services that include: lower frequency collector routes, regional express routes that enter Missoula from other parts of the region, and non-fixed route transit services, such as paratransit services provided by a range of service providers.

The PTN is a network of all-day transit service that, at full build-out, operates every 15 minutes or better on weekdays and every 30 minutes or better on Saturdays, for at least 16 hours a day. Over the long-term, it is desired that PTN service levels will include 30 minute service on Sundays as well. The long-term goal is for all PTN corridors to meet the following performance criteria for six key dimensions of transit quality. A phased approach for PTN implementation is described in further detail below.

- **Frequency** – PTN services should run all day at frequencies of 15 minutes or better on weekdays and 30 minutes or better on weekends.
- **Span** – PTN services should run for at least 16 hours a day, seven days a week.
- **Speed** – PTN services should have an average operating speed of no less than 30% of the speed limit (this operating speed accounts for stops).
- **Reliability** – Reliability is an anchor of the PTN. Users should expect the PTN service to operate on schedule.
- **Loading** – Passengers may have to stand on occasion, but should not be crushed into buses that have loads exceeding seating and standing capacity.
- **Coverage** – Most people living in the city of Missoula should be within ¼ mile (about three to four blocks) of PTN service.

Two categories of PTN corridors have been identified:

- **Recommended PTN** — Recommended PTN corridors, either in their entirety or a segment thereof, are those that are the most densely developed, or have the potential to be most densely developed, and already have service at least every 30 minutes all day, though some have less frequent service on evenings and weekends. PTN corridors are intended to be elements of city infrastructure, with development along the PTN being conducted in a manner that respects neighborhood character and scale. Over time, these corridors should be assessed, using the methodology described below, to ensure that development and ridership is performing as expected.
- **Potential PTN** — Potential PTN corridors have many of the needed elements for transit-oriented development. Many of these corridors do not have the population and/or employment density required to support PTN levels of service presently, but if densities

increase due to community initiatives and focused investment, PTN service may be appropriate.

In addition to the PTN corridors, other "community transit" corridors have been identified. Community transit is less frequent than the PTN and is largely focused on connecting less developed or low-density areas of the region.

The PTN also serves as a guide for transit related capital facility investment. To optimize its investment in service, Mountain Line should prioritize facility investments on corridors with PTN levels of service, including:

- **Passenger Facilities and Amenities** – Transit stops on the PTN corridors should have the highest level of passenger amenities. Passenger waiting facilities should be clean, comfortable, secure, well-maintained, protected from moving traffic, and should not impede pedestrian through movement.
- **Pedestrian Environment** – The walking environment, which provides the primary mode of access to the local PTN, will influence people's decisions whether or not to use transit. The walking environment serving the PTN should have safe street crossings, minimal conflicts with vehicle traffic, sidewalks that are accessible and protected from moving traffic, direct walking paths, and trees or other streetscape elements that contribute to a comfortable and attractive walking environment.
- **Bicycle Access** – The PTN should have direct bicycle access that includes safe street crossings and minimal conflicts with traffic.
- **High Quality Vehicles** – Transit vehicles on the PTN corridors should be low floor and of the highest quality possible. Buses should be clean, comfortable, and well-maintained.
- **Safety and Security** – Passenger safety on vehicles, at transit stops and along walking/biking routes accessing the PTN should be safe and should be perceived to be safe by existing and potential future transit riders.

ROLE OF THE PRIMARY TRANSIT NETWORK

The PTN is a foundational element of Missoula's infrastructure. The concept of transit as a critical component of municipal infrastructure was largely lost with the demise of urban streetcars. The ability to adjust or eliminate bus routes based on political influence or interim priorities have decreased public expectations about the permanence and value of transit in shaping development. The PTN and supportive policies is foremost a mechanism to create long-lasting transit investments.

For the higher-density portions of the region, providing transit is as essential as streets and sidewalks. In the future, the PTN will help guide growth in Missoula along centralized and transit-served corridors. Because it is designed to serve a large share of the city's population with a minimum of line miles, the PTN can offer not just the best frequencies and spans of service, but also many other premium features, including:

- Priority for low-floor, high-capacity buses and any new bus technologies that expedite comfort or operations
- Premium shelters with many of the amenities associated with rail stations
- Information technology, including real-time information in shelters (the number of minutes until the next bus comes) and informational displays within buses (such as the time and the next stop)

- A distinct image that sets service in the PTN apart from the less-frequent community transit services
- Reinforced street pavement for smooth travel and fewer maintenance interruptions

The Missoula PTN is a planning tool designed to help the City and County to focus land use planning, zoning changes, and development along identified corridors where future transit service capacity and quality is anticipated. It also provides a clear set of priorities for Mountain Line to use when coordinating with the City and County to manage street rights-of-way to maintain minimum levels of operating speed and reliability. Effectively managing operating speeds as congestion grows means new transit resources can be spent to improve service, rather than to mitigate decreasing operating speeds.

IDENTIFYING THE PRIMARY TRANSIT NETWORK IN MISSOULA

The PTN network identified in this report was selected based on a number of factors. Initially, a GIS-based analysis was conducted to measure potential PTN corridors based on four critical factors of transit demand: residential density, employment density, ridership on existing transit services, and the presence of "anchor" activity centers. The scoring system is shown in Figure 5 below (Appendix A provides a map showing the scoring). The maximum score a corridor could receive is 70 points.

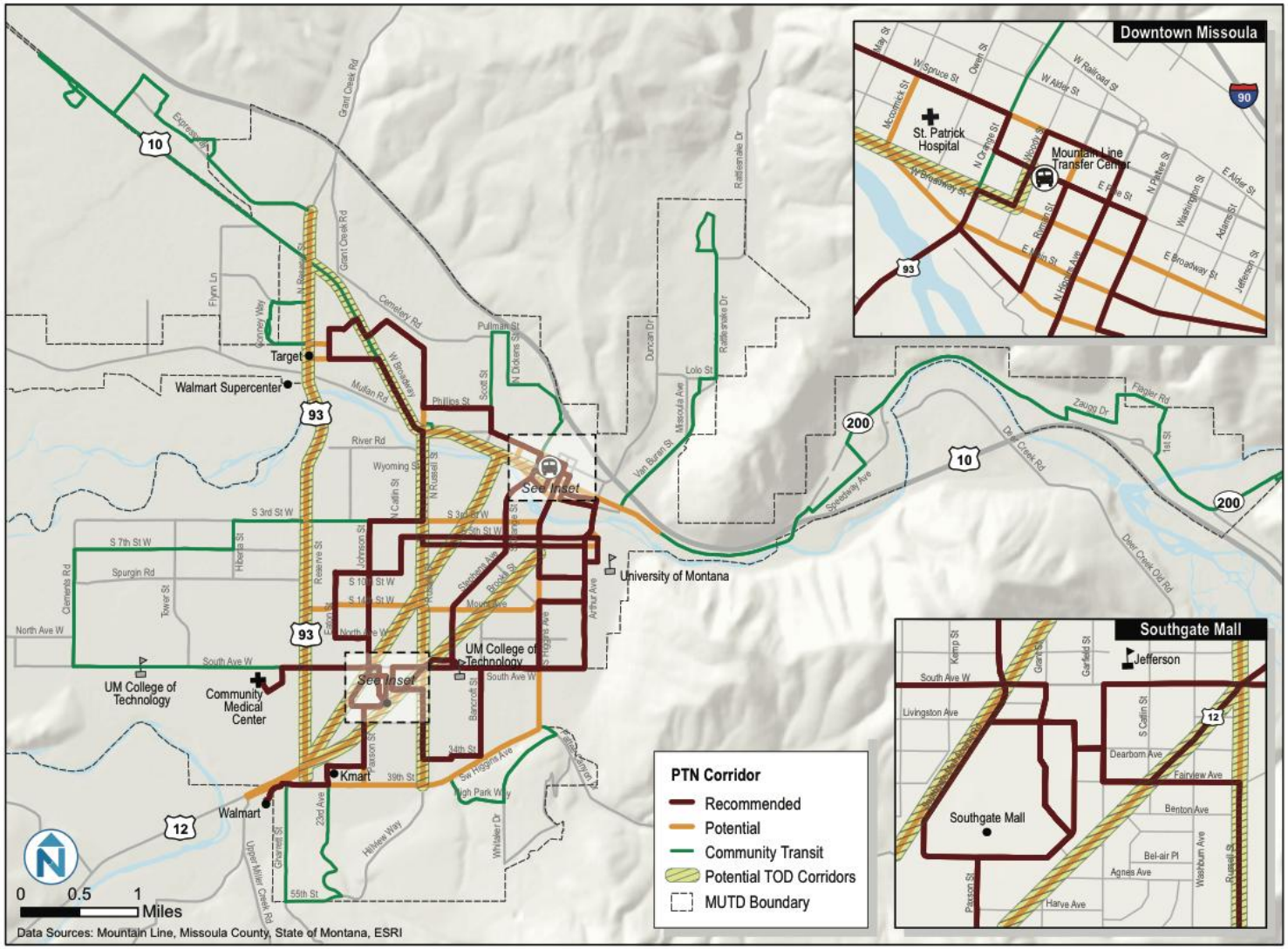
Figure 5 Potential Primary Transit Network Corridor Scoring

Category	Metric	Value	Score
Population Density	Current (2010) number of residents per acre within ¼ mile of corridor	15+ persons per acre	10
		12 – 15 persons per acre	8
		9 – 12 persons per acre	6
		6 – 9 persons per acre	4
		3 – 6 persons per acre	2
		0 – 3 persons per acre	0
	Future (2040) number of residents per acre within ¼ mile of corridor	15+ persons per acre	5
		12 – 15 persons per acre	4
		9 – 12 persons per acre	3
		6 – 9 persons per acre	2
		3 – 6 persons per acre	1
		0 – 3 persons per acre	0
Employment Density	Current (2010) number of employees per acre within ¼ mile of corridor	15+ employees per acre	10
		12 – 15 employees per acre	8
		9 – 12 employees per acre	6
		6 – 9 employees per acre	4
		3 – 6 employees per acre	2

Category	Metric	Value	Score
		0 – 3 employees per acre	0
	Future (2040) number of employees per acre within ¼ mile of corridor	15+ employees per acre	5
		12 – 15 employees per acre	4
		9 – 12 employees per acre	3
		6 – 9 employees per acre	2
		3 – 6 employees per acre	1
		0 – 3 employees per acre	0
Activity Centers	Activity Centers within ½ mile of corridor	3 activity centers	20
		2 activity centers	13
		1 activity center	7
		0 activity centers	0
Ridership	Boardings per mile	100+ boardings per mile	20
		75 – 100 boardings per mile	15
		50 – 75 boardings per mile	10
		25 – 50 boardings per mile	5
		0 – 25 boardings per mile	0

The final selection of PTN corridors was based on the GIS analysis, the preferred alternative of routes recommended through the 2012 COA process, and network geometry and connectivity issues (see). The PTN analysis should be conducted periodically in the future – at least along with every regional Long Range Plan update - to help identify the most promising corridors for service expansion.

Figure 6 Draft Primary Transit Network Map



ACHIEVING THE PRIMARY TRANSIT NETWORK

This section describes how to move from the existing service network to the PTN. PTN quality service will require Mountain Line to coordinate with the City and County of Missoula on land use and growth management policies, and focused investment in transit infrastructure and amenities.

Land Use Policies

The PTN is an organizing tool for both transit planning and land use, ensuring that each takes into account the intrinsic economics and logic of the other in the areas where the opportunity for transit ridership is highest. For example, if a planned land use is known to require transit, as social service offices and senior facilities do, then the PTN is the best place to locate this use and be assured of transit service over the long-term; conversely, if an entity needing transit chooses not to locate on the PTN, they do so with the knowledge that they may not get frequent, or any, transit service. Communication between the City and County, the development sector, and Mountain Line is essential to ensure transit needs are met efficiently. PTN policies can accomplish this by discouraging poor land use siting decisions and encouraging development along PTN corridors.

According to the *2011 Transit Guidelines in Project Development*, Mountain Line already participates in the development review process of all jurisdictions in the area by offering suggestions and recommendations that may improve and enhance transit services provided in MUTD's service area. MUTD also supports joint development opportunities where private and/or public sector resources could be used to pursue development in areas that would support high transit use.

A **Transit-Oriented Overlay Zone** is one tool for the City to use to foster appropriate development along the PTN. Although Section 20.25.080 Transit-Oriented Overlay was added to the City of Missoula code in 2009, no regulation is currently associated with the code. For now, it is a placeholder for potential regulation. The intention of a Transit Overlay would be to encourage compact development served by frequent transit service. Elements of the code could include:

- Increased development capacity as defined through the community planning process.
- Maximum zoning setbacks to ensure buildings are engaged with the street to foster a pedestrian friendly environment
- Limitations on auto-oriented uses such as vehicle sales or repair
- Outdoor seating for restaurants and pedestrian-oriented accessory uses, such as flower, food, or drink stands
- Active frontage buildings with at least one main entrance on the street located closest to the transit station
- Increased minimum number of bicycle parking spaces required for new development as outlined in Missoula City Code Section 19.78.050 Bicycle Parking
- Consideration of reducing minimum parking requirements as outlined in Section 19.78.150 Number of Off-Street Parking Spaces
- Limitations on driveways that cross sidewalks near where pedestrians access transit

Upon adoption of the PTN, Mountain Line should work with the City and County of Missoula to designate areas along the PTN as Transit-Oriented Overlay zones and implement elements of the suggested polices outlined above.

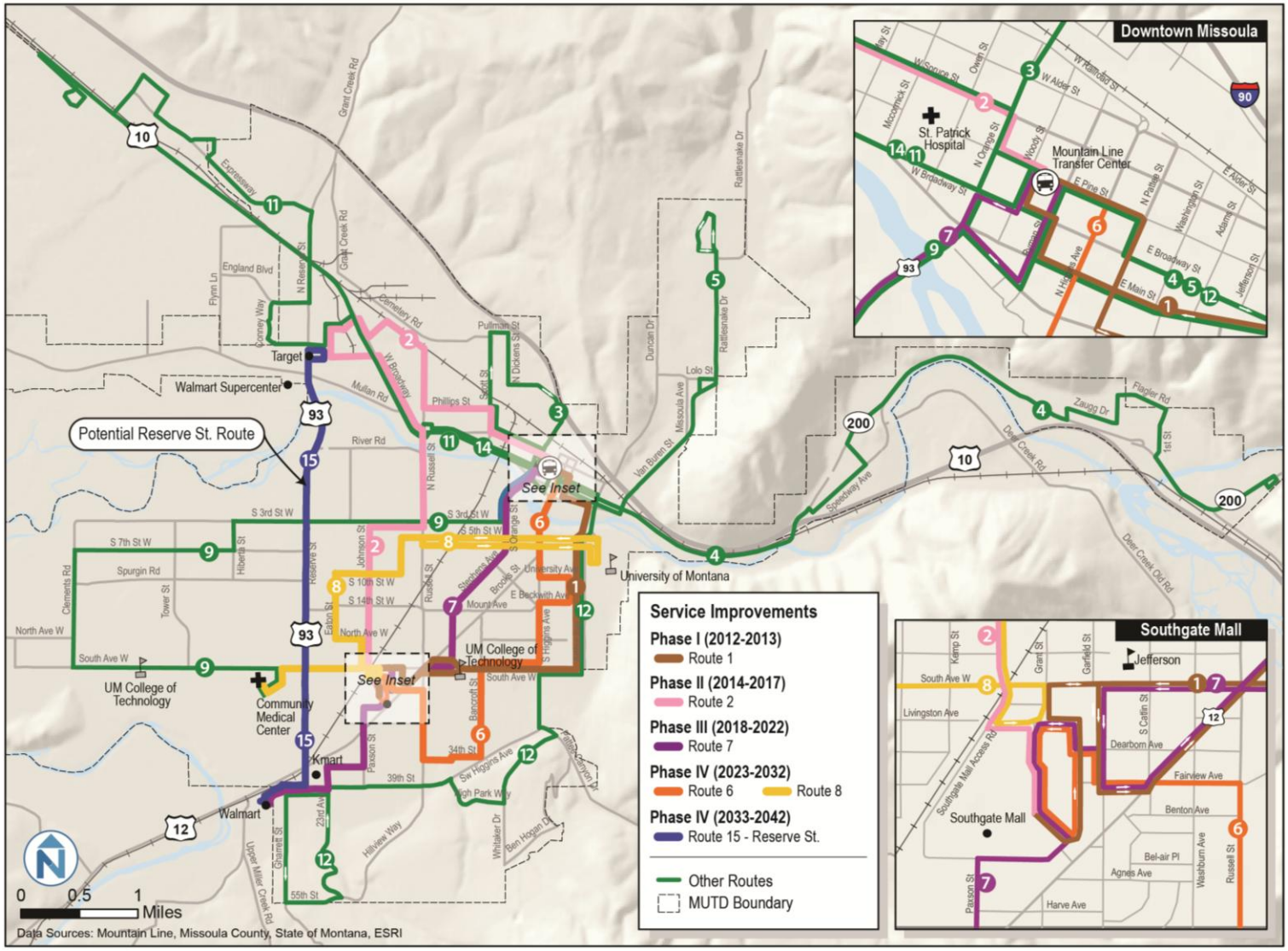
PTN Phased Approach

Achieving full build-out of the PTN will require years of transit investment and focused transit-oriented development to increase ridership along these priority corridors. We recommend implementing the PTN in phases so that transit investment can be made gradually alongside targeted growth management and land use strategies. Phases I and II implement the Recommended Service Plan in the *Mountain Line Comprehensive Operational Analysis (2012)*. The LRTP PTN is implemented in three phases starting in 2018. Figure below provides a detailed description of PTN phase implementation. Figure 9 provides an illustrated map of the phases.

Figure 7 Network Build-Out in Phases

Phase	Timeframe	Corridors	Components
Phase I Recommended Service Plan (COA)	Years 1-2 (2012-2013)	Downtown to Southgate Mall via Madison, Arthur and South (via Route 1 in the preferred alternative)	▪ PTN service levels by implementing the first phase of the preferred service alternative (15 min. all day, 15 hours of service)
Phase II Recommended Service Plan (COA)	Years 3-5 (2014-2017)	Downtown to North Reserve (Target) and Southgate Mall (via Route 2 in the preferred alternative)	▪ Begin building PTN service levels by implementing second phase of the preferred alternative (15 min. all day, 15 hours of service)
Phase III LRTP PTN	Years 6-10 (2018-2022)	Downtown to UM and Southgate Mall (via Route 1); Downtown to North Reserve (Target) and Southgate Mall (via Route 2); Downtown to Southgate Mall (via Route 7)	▪ Full PTN service levels (15 minute service all day, long service span), Routes 1 and 2 ▪ Begin building PTN levels of service (15 min. peak, 30 minute midday – 30 minute all day on Saturday), Route 7 ▪ Evaluate viability of rubber tired circulator between U of M and St. Patrick Hospital
Phase IV LRTP PTN	Years 11-20 (2023-2032)	Community Hospital and Southgate Mall to UM (via Route 8); Downtown to south Missoula (via Higgins and portions of Route 6)	▪ Implement full PTN service (15 minute service all day, 16 hour service day), Route 7 ▪ Begin building PTN levels of service (15 min. peak, 30 minute midday), Routes 6 and 8 ▪ Implement Sunday service on all routes
Phase V LRTP PTN	Years 21-30 (2033-2040)	Downtown to UM and Southgate Mall (via Route 1); Downtown to North Reserve (Target) and Southgate Mall (via Route 2); Potential service via Montana Rail Link corridor; Potential service via Reserve corridor	▪ Implement full PTN service (15 minute service all day, 16 hour service day), Routes 6 and 8 ▪ Consider higher frequencies on core loop route (7 ½ minute peak headways, 15 minute rest of day) ▪ Consider new corridor service (may not be full PTN level of service)

Figure 8 Draft Primary Transit Network Phases



PTN Cost Estimate

After establishing the network of PTN corridors, we estimated the operating costs necessary to operate service on the PTN network as well as non-PTN community corridors. Operating costs presented in Figure below are shown assuming a 3% rate of inflation per year.

Figure 9 PTN and Community Corridor Cost Estimate at Full Build Out

	Existing		Phase I (Yr 1-2)		Phase II (Yr 3-5)		Phase III (Yr 6-10)		Phase IV (Yr 11-20)		Phase V (Yr 21-30)	
	Weekday	**Weekend**	**Weekday**	**Weekend**	**Weekday**	**Weekend**	**Weekday**	**Weekend**	**Weekday**	**Weekend**	**Weekday**	**Weekend**
Headway	Varies by route		15 minutes	30 minutes	15 minutes	30 minutes	15 minutes	30 minutes	15 minutes	30 minutes	15 minutes	30 minutes
Span of service	14:40 hours (5:35 AM – 8:15 PM)		15 hours	15 hours	15 hours	15 hours	15 hours	15 hours	15 hours	15 hours	15 hours	15 hours
Operating speed	14.12 mph	13.73 mph	13 mph	13 mph	13 mph	13 mph	13 mph	13 mph	13 mph	13 mph	13 mph	13 mph
Operating cost per hour	$78.42/hr		$83.20/hr		$93.64/hr		$108.88/hr		$145.88/hr		$184.80/hr	
Revenue Hours	42,534	2,994	42,506	2,994	56,100	3,900	62,700	4,400	72,400	9,600	83,990	13,700
Annual operating cost	$3.6M		$3.8M		$5.6M		$7.3M		$11.9M		$18.0M	
Peek vehicles needed	17		17		20		22		26		27	

Note: Operating costs per hour and annual operating costs account for a 3% rate of inflation per year.

Chapter 5 provides a detailed discussion of existing funding projections in comparison to projected operating and capital costs for full PTN build-out.

SERVICE POLICY RECOMMENDATIONS AND ACTION ITEMS

Figure 10 Summary of Service Policy Recommendations and Action Items

Type	Item Number	Policy/Action Description
Policy	3.1.1.p	Designate a Primary Transit Network to focus service investment and development.
	3.1.2.p	Develop a regional PTN brand to communicate speed, reliability, frequency, and span of service.
	3.1.3.p	Monitor system performance of the system including the PTN against the performance criteria listed in the LRTP.
Action Item	3.1.1.a	As a key partner in TDM delivery in the region, implement the recommendations in the Missoula TDM Program Review and Recommendations study (2012).
	3.1.2.a	Create a Transit Corridor Capital Program to develop speed and reliability and passenger amenity improvements along the PTN.
	3.1.3.a	Initiate a human and social transportation service roundtable with area service providers to brainstorm opportunities for coordination, improved service, and cost savings.
	3.1.4.a	To monitor performance, collect data and do a full assessment of the system against PTN criteria every two years.

LAND USE POLICY RECOMMENDATIONS AND ACTION ITEMS

Figure 11 Summary of Land Use Policy Recommendations and Action Items

Type	Item Number	Policy/Action Description
Action Item	3.2.1.a	Designate a transit-oriented development liaison to ensure new development is appropriately located along the PTN.
	3.2.2.a	Work with the City and County of Missoula to add regulatory language to the existing Transit-Overlay Zoning code Section 20.25.080 based on the adopted PTN.

4 CAPITAL IMPROVEMENTS

This section highlights capital elements of Missoula's transit system and provides recommendations for Mountain Line's role in implementation.

SUMMARY OF SHORT-RANGE AND LONG-RANGE CAPITAL ELEMENTS

The *Missoula Urban Transit District (MUTD) 2010-2014 Transportation Development Plan (TDP)* documents a number of planned capital projects to be implemented in the short-term (by 2014). This section summarizes the planned capital investments of the TDP, followed by a summary of recommended capital investments described in the chapter below.

Figure 12 Planned Capital Improvement Projects, 2012-2014

Year	Capital Category	Project	Funding Source	Amount	Local MUTD Match	Total
2012	Paratransit	Purchase 2 paratransit vehicles to replace aging vehicles	Section 5307	$96,000	$24,000	$120,000
		Purchase a Paratransit vehicle with a high capacity lift in excess of 600 pounds	Section 5317 New Freedoms	$52,000	$13,000	$65,000
Total 2012						**$1,070,000**
2013	ITS Upgrade	Update obsolete computer systems	Section 5307	$36,000	$9,000	$45,000
Total 2013						**$45,000**
2014	Passenger Shelters & Amenities	Purchase and install passenger shelters and amenities (benches and adequate signage)	CMAQ	$51,948	$8,052	$60,000
	Paratransit Vehicles	Purchase a paratransit vehicle to replace aging vehicles	Section 5310	$54,000	$13,500	$67,500
Total 2014						**$127,500**

Source: MUTD Transit Development Plan Five Year Plan, 2010-2014

Other planned capital elements under consideration in the TDP include:

- Purchase and install Opticom GPS Preemption System at key congested intersections to increase on time performance

- Farebox upgrade/Smart Cards implementation to upgrade its fare collection system including expanding the Smart Card System

Figure below provides a summary of capital improvements recommended to implement the full build-out of the PTN by 2040.

Figure 13 Recommended Capital Improvements Cost Estimate Summary, 2018 - 2040

Capital Improvement Category	PTN Phase	Project	Estimated Cost
Vehicle Options	Phase II	Fixed Route Fleet Expansion	$1.2M - $1.4M
	Phase III	Fixed Route Fleet Expansion	$1.3M - $1.6M
	Phase IV	Fixed Route Fleet Expansion	$6.2M - $7.5M
	Phase V	Fixed Route Fleet Expansion	$4.4M - $5.3M
Amenity & Image Improvements	Phase III	Branding the PTN	n/a
	Phases III - V	PTN Transit Station Design & Prioritization	$500 - $700 per Tier I station $5,000 - $7,00 per Tier II station $15,000 - $30,000 per Tier III station
Protections from Traffic Delay	Phase III	Queue Bypasses	$15,000 ea
	Phase III	Transit Signal Priority	$50,000 - $85,000 per intersection
Multimodal Access	Phases I - V	Pedestrian Access Improvements	n/a
	Phases I - V	Cycling Access Improvements	n/a
Major Facilities	Phase III	Southgate Mall Transit Center	$15,000 - $30,000
	Phase IV	Bus Maintenance Facility Expansion	TBD
	Phase V	Downtown Transit Center Redevelopment	TBD

Note: Vehicle estimates account for an inflation rate of 3% per year; all other estimates are in 2012 dollars.

VEHICLE OPTIONS

PTN corridors have the potential to be served by multiple modes. The LRTP considers two delivery modes that would be an enhancement over traditional bus service —bus rapid transit (BRT) and enhanced bus.

Bus Options

Bus rapid transit

Bus rapid transit (BRT) combines a rubber-tired transit vehicle with the operating characteristics of rail service, including longer stop spacing and the use of exclusive right-of-way. BRT stations similarly include real-time passenger information, level boarding, off-board fare payment, and enhanced station amenities. BRT vehicles are often branded or stylized to distinguish them from

buses providing local service, and they may have features such as multiple, wide doors to increase boarding capacity.

The Federal Transit Administration (FTA) Small Starts grant program provides competitive grant funding for capital costs associated with new fixed guideway systems, extensions, and bus corridor improvements. Small Starts projects tend to be larger BRT or smaller LRT and streetcar projects. The following eligibility criteria are required of projects to qualify for federal Small Starts:

- Less than $250 million total cost, with no greater than $75 million requested in 5309 Capital Improvement Grant funding
- A fixed guideway for at least 50% of the project length in the peak period
- A corridor-based bus project with the following minimum elements:
  - Substantial stations
  - TSP/priority treatments
  - Low floor/level boarding
  - Service branding
  - 10/15 minute peak/off-peak service
  - 14 hour service span

The FTA Very Small Starts Grant program tends to be for smaller BRT or "BRT light" (also called Rapid Bus) projects that are less than $50 million in total cost and less than $3 million per mile (excluding vehicles).

Very Small Starts projects must include the following:

- Transit stations
- Signal priority/pre-emption (for bus/LRT)
- Low floor/level boarding vehicles
- Special branding of service
- Frequent service—10 minute peak/15 minute off-peak
- Service offered at least 14 hours per day
- Existing corridor ridership exceeding 3,000/day

The study and application process for VSS is simplified and relies heavily on a current ridership metric. Applicants must prove that there are 3,000 existing benefiting riders in the corridor. Currently, Mountain Line does not have any corridors that meet this threshold; in fact the entire system ridership is less than 4,000 daily boardings. However, with likely ridership gains due to service improvements on Route 1 and including some select ASUM corridors, this target may be attainable within two to five years. We recommend a more thorough study of current and projected ridership (on both systems) in the corridor and other VSS requirements to more fully assess the viability of this funding source. This could start immediately or within a year of implanting proposed service enhancements on Route 1.

Enhanced buses

Enhanced bus service assumes a more basic level of improvements and priority features for existing transit service, with increased hours of operation and frequency operating in mixed traffic.

As of 2012, Mountain Line operated 21 fixed route buses. The fleet includes both 30 feet and 35 feet buses. As of 2012, Mountain Line operated eight paratransit vehicles, including four vans and four cutaway buses. Significant capital dollars are needed to maintain the vehicle fleet for existing levels of service. Figure below outlines the cost to Mountain Line to replace the existing vehicle fleet between 2012 and 2040 (assuming no increases service). Fixed route buses are assumed to need replacement every 12 years; paratransit vehicles every five years.

Figure 14 Existing Vehicle Replacement Cost Estimate, 2012-2040

Replacement Year	Fixed Route Buses	Fixed Route Buses	Paratransit Vehicles	# of Paratransit Vehicles	Non-Revenue Vehicles**		Total
					Service	Maintenance	
2012			$78,604	(2) vans			$78,604
2013					$30,389		$30,389
2015			$137,276	(1) van (1) cutaway	$32,239	$60,805	$230,320
2016			$291,480	(3) cutaway			$291,480
2017			$191,199	(2) vans (1) cutaway			$191,199
2018	$2,020,980	(5) 35’			$40,007		$2,060,987
2020			$159,141	(1) van (1) cutaway	$37,374		$196,515
2021			$337,905	(3) cutaway		$74,782	$412,687
2022	$6,986,224	(14) 30”	$221,652	(2) vans (1) cutaway	$39,650		$7,247,526
2025			$184,488	(1) van (1) cutaway	$49,204		$233,692
2026			$391,725	(3) cutaway			$391,725
2027			$256,954	(2) vans (1) cutaway	$45,966		$302,920
2028						$91,973	$91,973
2029					$48,765		$48,765
2030	$2,881,435	(5) 35’	$213,872	(1) van (1) cutaway			$3,095,307
2031			$610,029	(4) cutaway			$610,029
2032			$141,968	(2) vans	$60,514		$202,482
2034	$9,960,602	(14) 30’	$170,371	(1) cutaway	$56,532		$10,187,595
2035			$77,566	(1) van		$113,115	$190,681
2036			$511,113	(3) cutaway			$511,113
2037			$164,580	(2) vans			$164,580
2040			$89,920	(1) van			$89,920
Total	$21,849,331		$4,229,843		$440,640	$340,675	$26,860,489

Source: MUTD Staff

*Costs include an assumed rate of inflation of 3% per year

Mountain Line has an opportunity to operate enhanced bus service along the PTN and in other corridors. Ultimately, the size of the fleet will be matched to the requirements of the services operated. Mountain Line strives to decrease its environmental footprint by converting to cleaner running vehicles to reduce the amount of air pollutants and noise generated by Mountain Line vehicles. The recommended service plan, which is detailed in Chapter 3, recommends that Mountain Line increase its fixed route bus fleet by three buses in Phase II, add an additional three buses in Phase III, add five buses in Phase IV, and add one bus in Phase V to meet PTN service levels. The following cost estimate includes a low-range estimate if Mountain Line was to operate 30 feet - 35 feet diesel buses, to a high-range estimate if Mountain Line was to convert to larger (40 feet) or clean diesel or hybrid buses. Figure below provides a cost range for additional vehicles needed to meet PTN service levels.

Figure 15 PTN Enhanced Bus Estimates

Phase	Peak Fleet Requirement	Spare Vehicles (1)	Total Fleet Requirement	Additional Buses Needed per Phase	Additional Capital $ Needed per Phase (2), (3), (4), (5)
Current Fleet	*17*	*4*	*21*	-	-
Phase I COA	17	4	21	0	$0
Phase II COA	20	4	24	3 buses	$1.2M - $1.4M
Phase III LRTP	22	5	27	3 buses	$1.3M - $1.6M
Phase IV LRTP	26	6	32	5 buses	$6.2M - $7.5M
Phase V LRTP	27	6	33	1 bus	$4.4M - $5.3M

Notes: (1) Fleet estimates assume a 20% spare ratio in Phases II-V; (2) Bus cost estimates account for an inflation rate of 3% per year; (3) Additional buses assume service is implemented according to the Five-Phased approach; (4) Bus estimate assumed a base rate of $371,315 - $450,000 per vehicle in 2012 dollars; (5) Phases IV includes the replacement cost of Phase II and Phase III vehicles; Phase V includes the replacement cost of Phase IV buses.

As Mountain Line expands its service to implement the PTN, the following bus features should be prioritized:

- Low-floor vehicles for level boarding and streamlined wheelchair access
- Automated stop announcements, both visual and audible
- Seats that fold up to accommodate wheelchairs and standing room passengers with plentiful bars and grips to hold onto for safety
- Perimeter seating and a wider aisle
- Interior maps illustrating route, stops, and travel times
- Low-floor vehicles for level boarding and streamlined wheelchair access

Mountain Link's new 35' hybrid-electric buses offer high frequency bus service in Flagstaff, Arizona.

- Automated stop announcements, both visual and audible
- Seats that fold up to accommodate wheelchairs and standing room passengers with plentiful bars and grips to hold onto for safety
- Perimeter seating and a wider aisle
- Interior maps illustrating route, stops, and travel times

Vehicle Options Recommendations

Policy Recommendation 4.1.1.p: Develop specifications for future fleet replacement that provide high-amenity, low-floor vehicles for PTN services.

Action Item 4.1.1.a: Research opportunities for hybrid vehicles to reduce future exposure to fuel price increases.

AMENITY AND IMAGE IMPROVEMENTS FOR THE PRIMARY TRANSIT NETWORK

Branding the PTN

The PTN provides an opportunity to develop a universally recognizable set of services that communicates frequent and reliable service. By branding the PTN as an integrated part of city infrastructure, Mountain Line can market a set of services people can build their lives around.

- **Bus Shelters:** Distinctive design for PTN shelters, including fully enclosed shelters with heating and air conditioning where demand warrants provide a comfortable experience for PTN passengers. Signs on shelters identifying their location can also help passengers to orient themselves and give the shelters more of a "station" feel. Amenities at or near shelters that provide system mapping and information, news racks, and other fast vending opportunities add to the passenger experience.
- **Schedule Information:** A distinctive look for schedule information on high-frequency lines sets the PTN apart from other service. The introduction of real-time passenger information via dynamic displays online and smart phone accessible information also allows passengers to know exactly when the next transit vehicle will arrive.
- **Signage:** Distinctive signage for PTN lines can provide much more information than the current generic bus stop by advertising "15-minute service" or "the bus will be here soon!"

Service Branding

Transit branding can be employed to help communicate aspects of service quality (e.g. speed, reliability, frequency, and span of service) on an individual route or a network of routes. In some cases, a brand communicates all of these aspects. For high-capacity transit services that are commonly known to operate at high frequency all day, branding is often tied to speed or some other aspect of service. Branding of bus services in urban areas, where many routes service multiple functions and geographies and operate with varying levels of service, is most effective when tailored to communicate the key service-quality attributes.

PTN Transit Station Design & Prioritization

Safe and comfortable passenger amenities are an important element of any successful transit service. To transit users, the bus stop is the front door of the transit agency and is often the first impression they have when using transit. The design and location of bus stops also defines how transit and transit users are viewed in the community. Locating appropriately designed bus stops is not only important for retaining existing riders, but also in attracting new ones.

At a transit stop, shelters provide needed protection from inclement weather and sun, seats provide passengers a comfortable option while waiting for transit, and trash receptacles ensure the station area remains clean and attractive. Route/time information should also be posted at every stop. Higher-end station amenities also include live schedule information to let passengers know of the next vehicle arrival. Although high-end station amenities would ideally be installed at every transit station, a more realistic approach is to identify a threshold for investing in station upgrades. Moreover, not all station stops need the same level of amenities. Figure below outlines three tiers of station stop improvements and the thresholds for investment; Figure provides a station map for Missoula based on existing boardings (Tier I, Tier II, and Tier III).

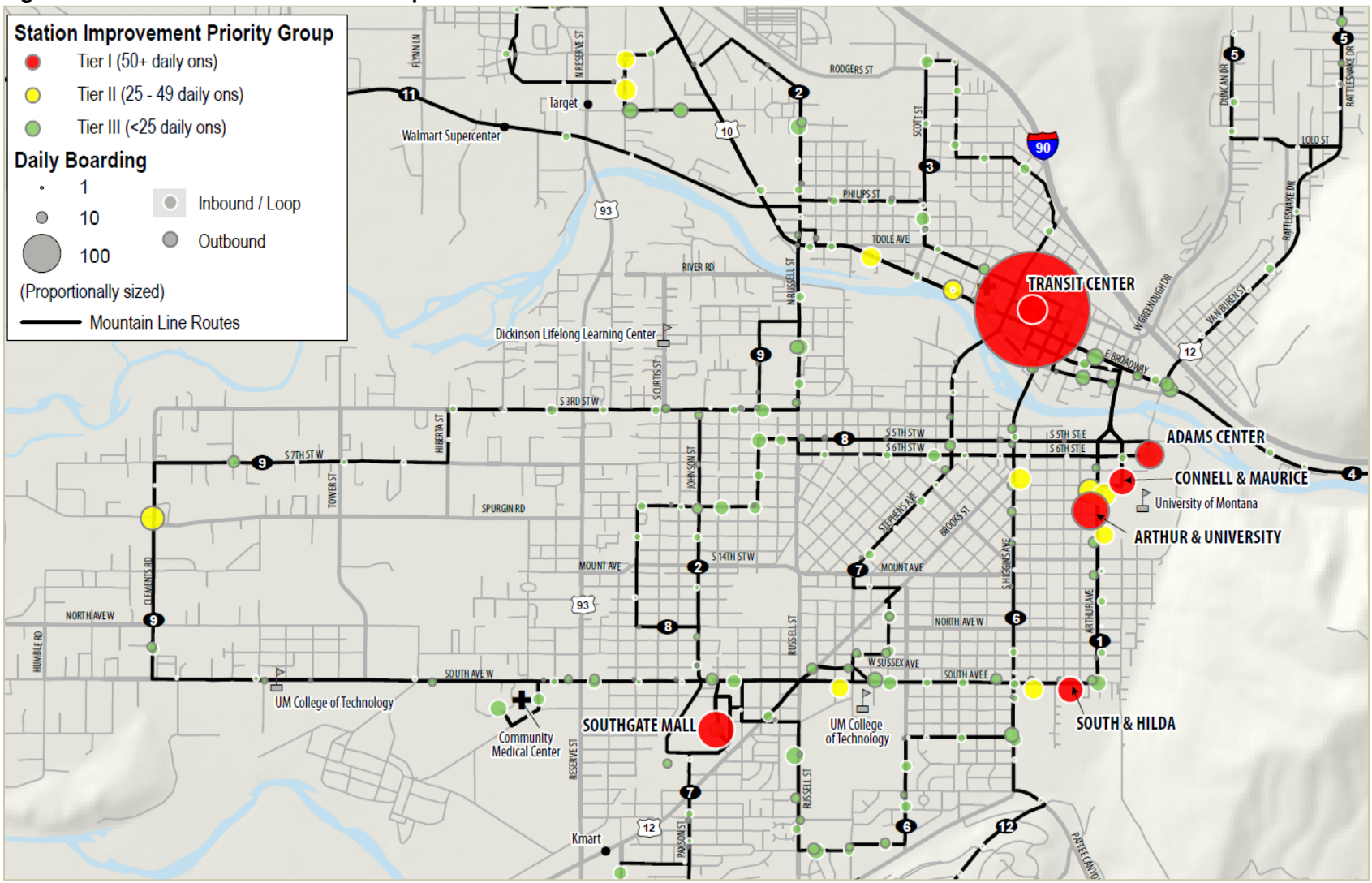
City of Boulder, Colorado "Super Stops"

In Boulder, Colorado, the City has designated transit "Super Stops" where multiple transit services meet. These stations provide for a pleasant and convenient transfer between transit services and connect passengers with community activity centers. These key locations are designated for more amenities than a normal bus stop, but do not require the level of investment of a BRT or light rail station, for example. Super stops include amenities for transferring transit customers (such as shelter, seating, schedule information, fare payment systems, supporting retail, etc.) and quality connections to important community destinations (such as improved roadway crossings, multi-paths, pedestrian connections, and signage and wayfinding systems).

Figure 16 Station Stop Tiers and Thresholds for Investment

Station Stop Tier	Station Amenities	Threshold for Investment	Estimated Cost
Tier 1: Neighborhood Bus Stop 	▪ Posted route/time information ▪ Seat desired but not required ▪ Good access desired but not required (except ADA requirements)	Low = <25 daily boardings	$500 - $700
Tier 2: PTN Stop with Shelter 	▪ Seating (minimum) ▪ Good access preferred (sidewalk, access, etc.) ▪ Posted route/time information	Medium = 25-49 daily boardings	$5,000 - $7,000
Tier 3: Enhanced Bus Stop 	▪ Shelter ▪ Seating ▪ Lighting ▪ Excellent pedestrian and bicycle access ▪ Real time bus arrival information ▪ Posted route/time information	High = >50 daily boardings	$15,000 - $30,000

Figure 17 Tiered Transit Station Map



Amenity & Image Recommendations

Policy Recommendation 4.2.1.p: Develop a tiered station stop designation program that would allow Mountain Line to identify pilot stops where a higher level of amenity and information could be provided.

Action Item 4.2.1.a: Conduct a transit station inventory to document existing conditions of each transit station. This information would be used to inform the tiered station designation program recommended above.

Action Item 4.2.2.a: Continue to implement the Transit Access Guidelines to provide guidance to developers, the City, and the County to design bicycle and pedestrian access to transit stations.

Action Item 4.2.3.a: Create wayfinding design guidelines to help people travel to and from transit stations.

Action Item 4.2.4.a: Partner with businesses to evaluate the feasibility of district funding mechanisms, such as a Business Improvement District, that can help fund transit information and marketing programs and make streetscape and transit stop improvements.

Action Item 4.2.5.a: Collaborate with the City of Missoula to ensure City codes and policies promote, require, and/or create incentives to provide stop amenity, marketing, or information features.

MULTIMODAL ACCESS TO TRANSIT

Safe and convenient pedestrian and bicycle access to the PTN is vital for an efficient and approachable transit system. In addition to focused corridor investment for transit service, the PTN framework will integrate bicycle and pedestrian facilities and spot improvements into each PTN corridor's initial planning and design phase. Although MUTD's *2011 Transit Guidelines in Project Development* provides some guidance for transit-friendly urban design, more specific guidelines are needed to ensure streets are safe and attractive and improvements are prioritized based on the PTN phasing plan.

Pedestrian Access

Improving and installing sidewalks, ensuring curbs and stops are ADA accessible, and enhancing the walking environment along key transit streets improves the attractiveness and viability of transit for more users and more types of trips. Quality pedestrian accessibility typically includes the following characteristics:

Denver's RTD implemented new Access Guidelines in 2009 to support pedstrian likages to its transit facilities.

- Continuous and connected network of sidewalks
- Barrier free routes, crosswalks, and ramps

- Ample lighting along the street and at the station
- Seating and shelter from wind and rain at stops
- Interesting visual environments and a good line of sight. Studies have shown that people are willing to walk farther on streets that have active, street-facing buildings and vital street life

Bicycle Access

Enhancing bike access to transit can be a cost-effective way to promote transit ridership.
Source: Todd Mecklem

Bicycle infrastructure that links into and along transit corridors and station areas will help transit riders connect to transit. Networks of low stress and high visibility bicycle facilities—such as off-street bicycle paths, neighborhood greenways, and cycle tracks/buffered bike lanes—are a critical component for bike/transit integration. Such investment in the bicycle environment will vastly extend transit's reach. The bicycle catchment area for transit access is far more extensive than walking. Bicyclists are typically willing to travel between three and four miles—roughly a 20-minute ride—to access transit. This section does not include cost estimates because the City will be primarily responsible for implementing access improvements. However, Mountain Line will need to play a strong role in working with the City to prioritize bike and pedestrian access along the PTN.

Transit Access Guidelines, Denver, Colorado
Denver's Regional Transportation District (RTD) recognizes the value of pedestrian linkages to transit facilities and their importance in supporting ridership growth. While RTD makes decisions regarding the siting and design of its facilities, community access is often beyond the immediate purview or direct control of transit agencies. RTD can, however, coordinate with other parties—such as local governments and the development community—that are responsible for the development and regulation of the physical infrastructure and built environment surrounding those facilities. The impact of those parties' actions on transit suggests that RTD's interests are served by collaborating with them on access concerns.

In 2009, the RTD released their Transit Access Guidelines to ensure that transit access is improved comprehensively and consistently and to support coordination with other entities. This document provides guidelines within the agency and to other coordinating parties regarding how to design access to the various stations and stops. The guidelines outline the roles and responsibilities (RTD responsibility vs. non-RTD responsibility) for each public agency with respect to pedestrian and bicycle access improvements.

RTD's guidelines encourage access to the transit system through a hierarchy of modes, in order of priority: pedestrians, bus riders, bicyclists, vehicles (short-term parking), and vehicles (long-term parking). Guidelines are specific to transit modes including light rail, commuter rail, and bus transit. Specific design standards such as walk speeds, platform design dimensions, access points, path distances to entrances, and sight line considerations are included. The guidelines also promote transit-oriented development principles in joint development projects and require that pedestrian-oriented design, density, and mix of land uses supportive of transit access be considered during review.

Multimodal Access Recommendations

Policy Recommendation 4.3.1.p: Support each PTN corridor with bicycle infrastructure and end-of-trip facilities, such as bicycle parking and on-board bicycle racks.

Action Item 4.3.2.p: Integrate Universal Design principles into all station design to improve access for the visually, acoustically, and mobility-impaired.

Action Item 4.3.1.a: Provide clearly visible and consistent wayfinding signage between transit facilities and all pedestrian and bicycle access points.

Action Item 4.3.2.a: Develop an interagency working group to facilitate coordination between the City of Missoula, the Missoula MPO, Mountain Line, and the University of Montana to develop design standards for transit and transit-access facilities.

PROTECTION FROM TRAFFIC DELAY

This section details a wide variety of tools are available to protect transit from traffic delay. Today the City and County employ few ITS or intersection design methods that provide transit opportunity to bypass congestion or reduce intersection delay. As the region grows and congestion worsens, such measures should be employed to ensure that transit retains reasonable operating speeds and does not suffer cost impacts of operating in increased traffic congestion.

Tools to eliminate merging delay from stops

A transit vehicle often loses significant time waiting for traffic to clear to exit a bus zone. For this reason, many agencies discourage bus pullouts, preferring bulbs that extend the sidewalk out to the traffic lane. Curb bulbs permit transit to stop in the traffic lane and eliminate the need to merge out of the stop. Many states also have traffic laws requiring traffic to yield to a bus exiting a zone. These buses have prominent flashing yield signs on the rear left to alert drivers of this requirement.

Transit signal priority

Many of the signals along major arterials are not linked to the signal progressions of intersecting streets. These signals typically occur at intersections with minor collectors and pedestrian-activated crosswalks. While these signals are important to local mobility, the green-time offered to the intersecting street is typically a policy minimum, and there are few side effects from delaying it to prevent minor signals from delaying a bus.

Transit signal priority (TSP) can be implemented with the same technology as a garage-door opener, where a driver simply presses a button to alert the signal of the bus' presence. Alternatively, it can use more sophisticated sensing devices based on Automatic Vehicle Location systems. In either case, the purpose is simply to pre-empt the green-time of the intersecting street or crosswalk just long enough for the bus to get through. The result does not disrupt the signal progression of the main arterial, because it simply extends the green-time of a minor signal; the minor signal would still be red for the arterial only when the progression dictates.

The pre-emption should not interrupt pedestrian-activated crosswalks once the pedestrian has been given a WALK signal, but it can delay the WALK signal until the next logical point in the arterial's signal progression. While this may sometimes cause late passengers to miss a bus, this tool is for use only on high-frequency lines where the next bus will be coming soon. It can also be de-activated in the evenings when frequencies are poorer and pedestrian access is a higher priority relative to operating speed.[29]

Estimated cost: $50,000 - $85,000 per intersection

Queue bypasses at major signals

It is often not practical for transit to preempt signals at the intersection of two arterials, because the intersecting arterial may have its own signal progression that cannot be disrupted without unacceptable traffic impacts. At these intersections, a common tool is the queue bypass. In this arrangement, the right lane approaching the intersection is reserved for buses and right-turning traffic only. A special brief signal phase gives a green light to the right lane, while also giving a red light to the crosswalk to which right-turning traffic would otherwise yield. This permits the right lane to clear out and for the bus to cross the intersection prior to the other lanes of queued traffic on the arterial. Queue bypasses require careful study, but are often an effective solution to moving transit through major intersections where delays can otherwise be severe.

Estimated cost: $15,000 each[30]

[29] In 2012, the City of Missoula and Montana Department of Transportation applied for a FTA Livability Grant for Signal Priority focused on the Broadway corridor and Russell Street. If the grant is awarded, the City has agreed to pay the matching funds.

[30] This assumes no curbs are moved and the length is relatively short.

Bus-only lanes and HOV lanes

The highest-benefit and highest-impact solution to bus operating speed problems is the bus-only lane. Freeway HOV lanes are an excellent example of this tool in an express mode, but there are also arterial applications. While there are currently no corridors in Missoula where bus throughput supports the elimination of auto capacity for bus only-lanes, this will be an important consideration for long-range service options. (It should be noted that there are corridors in Missoula where dedicated transit lanes may be merited in coordination with land use or station area plans that promote higher density, mixed-use infill). Many cities eliminate parking during high-demand hours to create a bus/HOV lane, though not all of these are properly enforced. Full bus/HOV lanes on arterials can be appropriate especially in very high-frequency corridors. These lanes dramatically impact the capacity of the street for traffic and parking, and typically require a well-established sense of urgency about the transit speed problem. Tracking policy operating speed standards on the Primary Transit Network can help Mountain Line decide when to suggest the City or County employee such measures.

Implementation of these traffic management tools will require leadership from the jurisdiction that controls the roadway. For this reason, policy operating speed standards, as discussed above, are especially relevant for identifying the need for these protections. Higher transit speeds lead to increased mode shift, which can dramatically increase the capacity of the roadway to move people through at peak times and reduce delay when measured on a per person basis, rather than by vehicle throughput.

Protection from Traffic Delay Recommendations

Policies related to signal treatments and timing are established by the City and County of Missoula. Mountain Line should consider options for enhancing transit speed in partnership with the City and County.

Action Item 4.4.1.a: Collaborate with the City to build curb bulbs at intersections with transit stops and high pedestrian volumes, particularly where lane widths allow cars to pass buses stopped at the curb.

Action Item 4.4.2.a: Monitor transit travel speed on the PTN and study signal and right-of-way enhancements to improve transit speed when travel speeds or reliability drop below minimum standards.

Action Item 4.4.3.a: Where significant new development is expected, conduct comprehensive corridor studies for key PTN corridors to examine future travel demand and multimodal strategies to accommodate corridor demand and efficient travel times. These studies should address future high capacity transit needs to ensure that recommended improvements do not preclude future development of more intensive, protected right-of-way transit service if merited.

Action Item 4.4.4.a: Recommend that the City implement a policy that traffic signal priority (TSP) be implemented as a standard when intersections are redesign and signal system are replaced in PTN corridors.

MAJOR FACILITIES

Southgate Mall Transit Center

A transit center at Southgate Mall has been identified as an opportunity. The transit center would require enough curb space for approximately four buses. Possible locations for the transit center include:

- Fairview Road between Southgate Mall Access Road and South Garfield Street
- Dearborn Avenue between Southgate Mall Access Road and South Garfield Street
- Near the potential rail corridor Livingston Street at the northern end of the mall

Mountain Line would be able to use existing right-of-way; the cost of the transit center would only include typical station amenities. Given the high boarding rates at the Southgate Mall, this station would likely be needed during Phase III of the Long Range Transit Plan.

Bus Maintenance Facility Expansion

According to Mountain Line staff, an additional four buses could be stored in the existing bus maintenance facility. Further bus storage would be needed in Phase IV of PTN implementation to accommodate the expanded fleet needed for service area or sooner if operating resources increase faster than expected.

Mountain Line should plan to study options for expansion of its existing facility or relocation to a new site. This process should begin 3-5 years in advance of when capacity limits are met. Funding for study and design of the facility should be allocated late in Phase II or Phase III of the LRTP.

Downtown Transit Center Redevelopment

Mountain Line has a quality, functional downtown transit facility that is well located relative to the core of downtown Missoula. The facility should have an extended useful life and, while it may need updates over the coming 10-15 years, should continue to serve basic transfer functions for the system. As the PTN is implemented, Mountain Line may be able to abandon pulse operations for high-frequency routes, which could actually expand the functional capacity of the transit center.

There is a large surface parking lot to the north of the Pine Street transit center. The redevelopment of this site may offer opportunities for Mountain Line to expand or enhance its facilities. The agency should monitor development opportunities at this site and examine opportunities for a public-private partnership with the developer that include replacement of the exiting off-street portion of the transit center with new facilities integrated into the building. A new facility could include:

- An enhanced waiting area
- Public and driver restrooms
- A transit and travel options information desk
- Mountain Line offices for marketing and information staff
- Facilities for passenger services such as ADA screening or pass sales
- A bike station that provides bicycle storage and maintenance services

- A travel options store that sells basic goods and services for commuters
- Other facilities that service transit customers or partner agencies that need a direct face to local customers

Major Facilities

Action Item 4.5.1.a: Collaborate with the Southgate Mall to determine the best location for the Southgate Mall transit center.

Action Item 4.5.2.a: Work with neighboring property owners to determine if bus garage expansion is feasible and affordable.

Action Item 4.5.3.a: Partner with the Downtown Association, the City, and private developers to update or redevelop the downtown transit center when the lot north of the center is redeveloped.

CAPITAL ELEMENT POLICY RECOMMENDATIONS AND ACTION ITEMS

Figure below provides a summary of recommended policies and action items for capital improvements.

Figure 18 Summary of Capital Improvement Policy Recommendations & Action Items

Capital Element	Type	Item Number	Policy/Action Description
Vehicle	Policy Recommendations	4.1.1.p	Develop specifications for future fleet replacement that provide high-amenity, low-floor vehicles for PTN services.
	Action Items	4.1.1.a	Research opportunities for hybrid vehicles to reduce future exposure to fuel price increases.
Image and Amenity Improvements	Policy Recommendations	4.2.1.p	Develop a tiered station stop designation program that would allow Mountain Line to identify pilot stops where a higher level of amenity and information could be provided.
	Action Items	4.2.1.a	Conduct a transit station inventory to document existing conditions of each transit station. This information would be used to inform the tiered station designation program recommended above.
		4.2.2.a	Continue to implement the Transit Access Guidelines to provide guidance to developers, the City, and the County to design bicycle and pedestrian access to transit stations.
		4.2.3.a	Create wayfinding design guidelines to help people travel to and from transit stations.
		4.2.4.a	Partner with businesses to evaluate the feasibility of district funding mechanisms, such as a Business Improvement District, that can help fund transit information and marketing programs and make streetscape and transit stop improvements.
		4.2.5.a	Collaborate with the City of Missoula to ensure City codes and policies promote, require, and/or create incentives to provide stop amenity, marketing, or information features.
Multimodal Access	Policy Recommendation	4.3.1.p	Support each PTN corridor with bicycle infrastructure and end-of-trip facilities, such as bicycle parking and on-board bicycle racks.
		4.3.2.p	Integrate Universal Design principles into all station design to improve access for the visually, acoustically, and mobility-impaired.
	Action Item	4.3.1.a	Provide clearly visible and consistent wayfinding signage between transit facilities and all pedestrian and bicycle access points.
		4.3.2.a	Develop an interagency working group to facilitate coordination between the City of Missoula, the Missoula MPO, Mountain Line, and the University of Montana to develop design standards for transit facilities and access

Capital Element	Type	Item Number	Policy/Action Description
			to transit.
		4.3.3.a	Collaborate with the City of Missoula to install high visibility crosswalk treatments and priority signal treatments for pedestrians to ensure safe and comfortable crossings within the PTN.
Protections from Traffic Delay	Policy Recommendations	Policies related to signal treatments and timing are in the hands of the City and County. Mountain Line should consider options for enhancing transit speed in partnership with the City and County of Missoula	
	Action Items	4.4.1.a	Collaborate with the City to build curb bulbs at intersections with transit stops and high pedestrian volumes, particularly where lane widths allow cars to pass buses stopped at the curb.
		4.4.2.a	Monitor transit travel speed on the PTN and study signal and right-of-way enhancements to improve transit speed when travel speeds or reliability drop below minimum standards.
		4.4.3.a	Where significant new development is expected, conduct comprehensive corridor studies for key PTN corridors to examine future travel demand and multimodal strategies to accommodate corridor demand and efficient travel times. These studies should address future high capacity transit needs to ensure that recommended improvements do not preclude future development of more intensive, protected right-of-way transit service if merited.
		4.4.4.a	Recommend that the City implement a policy that traffic signal priority (TSP) be implemented as a standard when intersections are redesign and signal system are replaced in PTN corridors.
Major Facilities	Action Item	4.5.1.a	Collaborate with the Southgate Mall to determine the best location for the Southgate Mall transit center.
		4.5.2.a	Work with neighboring property owners to determine if bus garage expansion is feasible and affordable.
		4.5.3.a	Partner with the Downtown Association, the City, and private developers to update or redevelop the downtown transit center when the lot north of the center is redeveloped.

5 FUNDING TRANSIT

OVERVIEW OF CURRENT FUNDING

In recent years, every sector of transportation has faced challenges to maintain current funding. Transit districts that rely on local tax revenue have been pressed to maintain historic levels of funding for operations, often in the face of growing demand. Even as the national economy improves, real and significant funding challenges are ahead, not only to expand service, but to maintain existing service levels and quality.

Residents in the Missoula region expect a great deal from the transit system—more and better service, contributions to improved air quality, mobility options for the transit dependent, and efficient access to an increasing number of destinations. Recent planning efforts have prioritized a transit system that focuses limited service resources in the urban center where passenger demands are highest.

Mountain Line's ability to provide high quality transit service is dependent on the availability of funding from local property taxes, passenger revenue, federal assistance, state assistance, and other income. To implement the PTN, a concerted effort must be made to increase funding by exploring new local funding sources, building stronger partnerships between public transportation providers in the region, and increasing involvement of the private sector to fund and expand transit service in Missoula.

Given the current economic environment both nationally and locally, the cost of and demand for transit service could fluctuate considerably. With increasing gas prices, Mountain Line's operating expenses will also increase. At the same time, increased gas prices also increase the demand for transit services as households shift travel patterns to save money on transportation costs. This shifted demand could increase revenue for Mountain Line, but could also increase demand for service pressing operating costs higher.

This LRTP proposes a PTN that focuses transit investment along key corridors, increases the number of service hours, and expands the service span to weekends. This chapter provides a discussion of current revenue and expenses, expected revenue based on existing projections, and the funding gap presented by the PTN. The chapter concludes with a discussion of future funding opportunities to reduce the funding gap.

Factors that could decrease the funding for MUTD include:

- New demand for service away from existing transit corridors
- Less job growth
- Reduction in property tax rates
- Changes to fare structure that decrease farebox revenue
- Reductions in federal grants

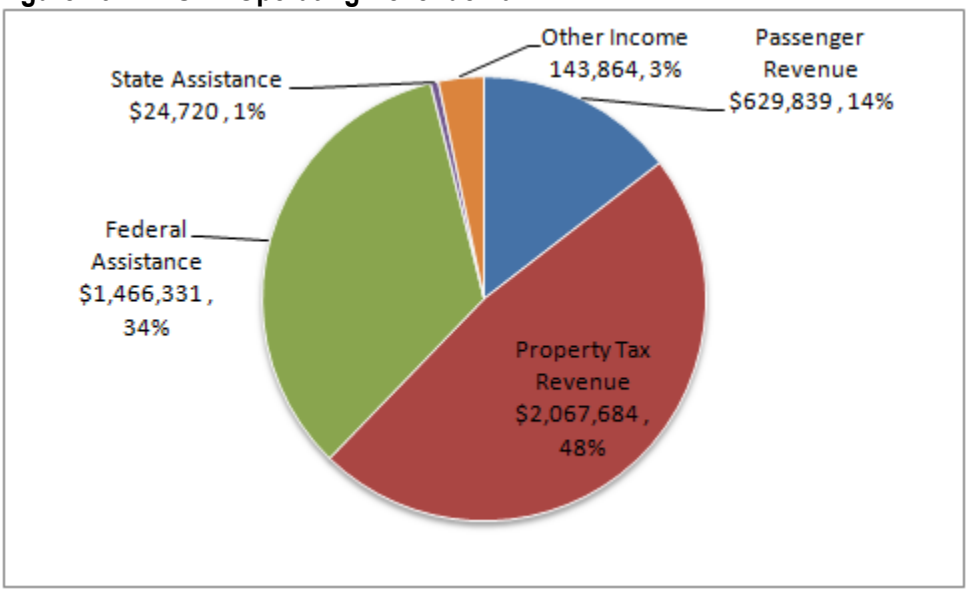
Factors that could increase the funding for MUTD include:

- Increased ridership along existing routes
- New fees or taxes
- Changes to fare structure that increase farebox revenue
- Increase in property tax rates
- Employment growth
- New federal investment in transit

MUTD Revenue & Expenses

The MUTD has the authority to levy taxes and issue bonds to fund both transit operations and improvements. Approximately half of Mountain Line's annual revenue comes from a property tax levy assessed within the MUTD, a geographic area that differs slightly from the City boundary. The annual operating budget for the MUTD was $4,332,438 in 2011. The operating budget breakdown is provided in Figure below (the "Passenger Revenue" category includes ticket and passenger sales, local paratransit assistance, Medicaid reimbursement, shuttle services, and University of Montana subsidy; "Other Income" includes advertising revenue and investment income.

Figure 19 MUTD Operating Revenue 2011



Source: MUTD Transit Development Plan, 2010-2014

Based on the MUTD Transit Development Plan FY 2010-2014, revenue and expenses are both projected to increase by 3% per year between 2010 and 2014 (see Figure below).[31]

[31] Mountain Line assumes approximately a 3% increase in expenses and revenue per year.

Figure 20 MUTD Operating Budget FY 2010-2014

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Revenue					
Passenger Revenue	$611,494	$629,839	$648,734	$668,196	$688,242
Property Tax Revenue	$2,007,460	$2,067,684	$2,129,714	$2,193,606	$2,259,414
Federal Assistance	$1,423,622	$1,466,331	$1,510,321	$1,555,630	$1,602,299
State Assistance	$24,000	$24,720	$25,462	$26,225	$27,012
Local Assistance					
Other Income	$139,674	$143,864	$148,180	$152,626	$157,204
TOTAL REVENUE	**$4,206,250**	**$4,332,438**	**$4,462,411**	**$4,596,283**	**$4,734,171**
Expenses					
Fixed Route	$3,725,606	$3,837,374	$3,952,495	$4,071,070	$4,193,202
Paratransit	$480,644	$495,063	$509,915	$525,213	$540,969
Total Operating Expense	**$4,206,250**	**$4,332,437**	**$4,462,410**	**$4,596,283**	**$4,734,171**

Source: MUTD Transit Development Plan FY 2010-2014

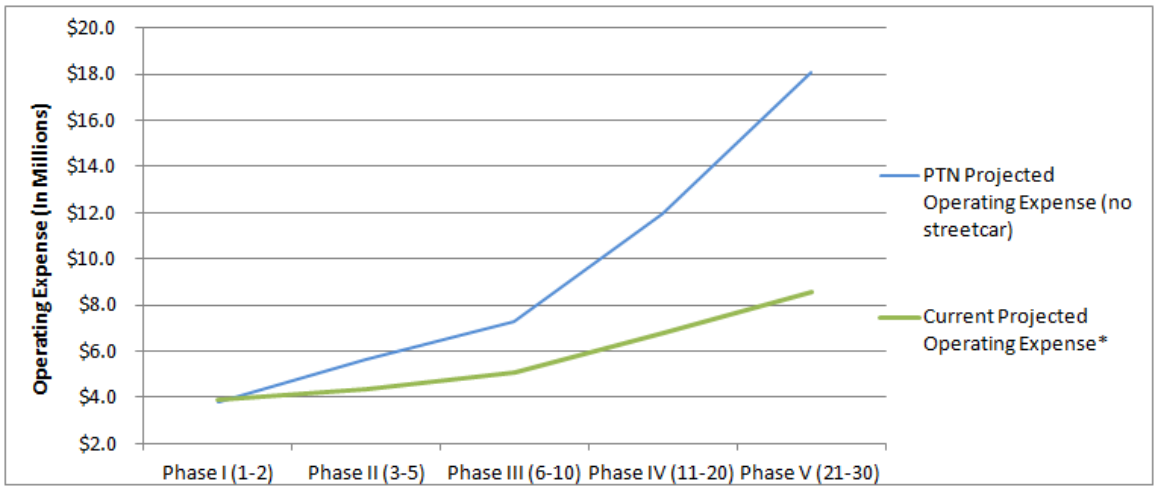
Planned Operating & Capital Projects

The MUTD receives capital assistance as needed from federal grants. Most federal funding for transit capital improvements comes through congressional appropriations to the Surface Transportation Act (STA). MUTD is recognized by the Federal Transit Administration as a transit operator and is therefore eligible to directly receive federal grant funds for transit projects. The required local match for operating and capital projects is paid for from local property taxes. Federal funding for operating and capital projects comes from the Congestion Management and Air Quality Improvement (CMAQ) program and various FTA grants.

THE PTN FUNDING GAP

PTN implementation will occur in phases, as described in Chapter 3 above, with a projected annual operating cost of $18.0 million at full build-out in Phase V. By comparison, Mountain Line's projected annual operating budget, assuming a rate of inflation of 3% per year, would be only $8.6 million in Phase V (see Figure below). Local funding opportunities to reduce this funding gap are already in discussion in Missoula.

Figure 21 Projected PTN Operating Expenses Compared to Current, 2012 - 2040



* PTN and current projections account for an estimated rate of inflation of 3% per year.

FUNDING OPPORTUNITIES

New and innovative funding sources will be needed to realize PTN goals and deliver the projects and improvements included in this plan. Funding to implement the capital and operations improvements recommended in this plan will come from a variety of sources, including federal and local. The LRTP is not solely guided by current fiscal realities; this document provides Mountain Line a chance to think aggressively, but wisely, about how to grow transit service and improve capital facilities to meet local mobility needs and support community development efforts.

Capital and Planning Funding Options

Federal funding opportunities - capital

The MUTD already receives a number of formula funded grant opportunities. This section outlines capital funding opportunities to leverage existing formula funded opportunities and to apply for competitive grants. The most recent federal transportation funding bill (SAFTEA: LU – Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users) addressed issues facing fast growing western states and lowered the local match requirements from 20% to 14% for capital projects in Montana. Many of the federal programs can also provide ongoing operating assistance and the next section details those that address both needs.

- **FTA Section 5307 Urbanized Area Grant Program:** Formula funding based on population density and provision of transit services. A staff person at Mountain Line noted that they have been able to use CMAQ funds instead of drawing down their full 5307 formula allotment.
- **FTA Section 5309 Bus, Bus Facility, and New/Small Starts Program:** Competitive grant program for construction of new or extensions to existing fixed guideway systems (New Starts). Capital projects less than $75 million and total capital cost less than $250 million (Small Starts) are eligible. Simple, projects operating in mixed traffic may qualify as a 5309 Very Small Start (less than $50 million total cost and less

than $3 million per mile (excluding vehicles). Historically, except for a portion of the bus and bus facility funding, Section 5309 funds are fully discretionary and can be somewhat difficult to acquire.

- **FTA Section 5399 Planning, Engineering:** Funding available to assist in the planning and engineering process of selecting an appropriate modal application for a particular corridor.
- **FTA Section 5316 Job Access and Reverse Commute Program (JARC):** Formula funding to address transportation challenges faced by welfare recipients and low-income persons seeking to obtain and maintain employment. The formula is based on ratios involving the number of eligible low-income and welfare recipients with small urban areas (those with a population less than 200,000) receiving 20% of the total funding.
- **FTA Section 5317 New Freedom Program:** Formula funding for additional tools to overcome existing barriers facing Americans with disabilities seeking integration into the work force and society. These funds are intended for startup/pilot projects that go beyond current ADA paratransit and other available services.
- **FTA Section 5310 Transportation for Elderly Persons and Persons with Disabilities:** Formula funding to states for the purpose of assisting private nonprofit groups, and under certain circumstances, public agencies, in meeting transportation needs of the elderly and persons with disabilities. Grantees of federal funding through Section 5310 (along with the Job Access and Reverse Commute (JARC) and New Freedom programs) are required to certify that funded projects are derived from a Coordinated Public Transit-Human Services Transportation Plan. Up to 10% of the total grant amount for all three sources of funds may be used to support planning and project selection activities. There is no match required, and the funds may be applied for in advance of completing the planning activities.
- **TIGER (USDOT) the American Recovery and Reinvestment Act (ARRA)**: The Transportation Investment Generating Economic Recovery program (TIGER) established a competitive grant program to foster innovative, multi-modal, and multi-jurisdictional transportation projects that promise significant economic and environmental benefits to a metropolitan area, region, or the nation.
- **Veterans Transportation and Community Living Initiative Grant Program:** The Department of Transportation has joined with the Departments of Veterans Affairs, Labor, Defense, and Health and Human Services to establish an initiative that will improve transportation options and mobility for America's veterans, service members, and their families.

Local funding opportunities – capital

The following are some of the potential local sources of funding for capital improvements called for in this plan. Some sources also have the potential to raise operating, marketing, and outreach funds. Many of the sources identified in this section have also been identified by the Montana Department of Transportation.[32]

A number of the funding sources listed below would be implemented by the City or within a city district. As such, these approaches would need to occur in partnership with the City and/or

[32] Montana Department of Transportation." Financing Districts." http://www.mdt.mt.gov/research/toolkit/m1/ftools/fd.shtml

County and would likely focus on funding specific capital improvements for transit or transit access, in some cases in concert with other public improvements.

Transit agencies and cities around the nation are also increasingly looking for new and creative mechanisms to supplement traditional sales or property tax funding for transit. A number of these sources would require extensive additional study, changes to local policies or laws, and extensive outreach with affected residents and/or businesses.

- **Special Improvement District (SID)**: A SID is an area within which properties are assessed an additional amount in order to pay for or maintain a capital improvement that confers a special benefit on those properties. The City of Missoula has implemented more than a dozen SIDs to pay for new sewer, curbs, gutters, sidewalks, streets, and parks within the city limits. SID assessment methods can be customized to fit the situation and can be levied on the basis of property or building size, assessed value, front footage of each parcel bordering a street, or a combination of these methods. A Downtown Business Improvement District (BID) has been in place in Missoula since 2005, and covers most of "greater downtown" Missoula, including the Higgins Hipstrip, but not the Sawmill or UM areas. The assessment framework of the BID is similar to a SID, however, BID funds are authorized to pay for operations—marketing, events, safety and security, etc.—rather than capital improvements. This BID enjoys widespread support and generates approximately $250,000 per year; this revenue stream is equivalent to a bonded capital amount of approximately $2,500,000.
- **General Obligation Bonds:** Bonds are a primary source of funds for constructing capital improvement projects. Voter-approved bonds are sold to fund street and other transportation projects.
- **Parking Benefit District:** A Parking Benefit District (PBD) institutes a system where fees collected for parking, less any city expenses for operations, maintenance and enforcement, are used to the benefit of the business district or residential district in which the parking is located. A governing body for the PBD decides how the collected fees are spent. Most often these funds are used for street furniture and cleaning, plantings, bus shelters, and other amenities that enhance the pedestrian experience in the immediate area. PBDs can also reduce vehicular traffic by increasing parking fees. Neighborhood Permit Parking initiatives have been introduced to prevent parking overspill in neighboring communities from commuters trying to avoid parking restrictions and charges. A PBD in Missoula would require strong partnership with the Missoula Parking Commission.
- **Transit Benefit District:** Transit Benefit Districts (TBD) refer to PBDs that charge fees to be used to increase transit service, thereby further reducing traffic by providing a wider range of transit choices for employees and visitors to the TBD.
- **Transit Impact Fee**: Like any city, the economic health of Missoula depends on the ability of its transportation system to move people and goods. At the same time, however, the impacts of vehicle movement and storage pose a strain on city services such as street maintenance, parking, and transit operations. Some of these costs are already recouped through voluntary mitigation fees or in the form of parking charges and other sources of revenue. These, however, only cover selected impacts, and do not necessarily defray the full costs of providing transit to serve new development or mitigate the impacts of increased congestion on transit travel speeds. There may be an opportunity to introduce a new fee to more accurately reflect the impact of development on the transit system.

Provided there is a strong nexus with the actual impact, these fees can raise revenue without the need for voter approval. At the same time, the introduction of a new fee presents a major opportunity to shift travel behavior and development decisions in line with the City's goals of promoting transit, walking, and biking. Indeed, most transportation fees and charges introduced across the world have the twin aims of raising revenue and changing user behavior. Extensive study to establish a legal nexus for the fee would be required. In addition to funding capital, there have been some efforts to fund operations with impact fees.

In the future, Mountain Line and/or the City may want to work with local business groups and the University of Montana in existing or emerging centers or corridors to consider district options that could enhance transit capital facilities, transit service, or aid in the implementation of pedestrian realm improvements. These strategies should be considered as part of a larger corridor or area strategy and would need to be supported by local business groups and other partners.

Operations Funding Opportunities

Federal funding opportunities – operations

Many of the previously discussed federal programs can also fund operations, but typically under special situations and/or with higher local match requirements. SAFTEA: LU also lowered the local match requirements from 50% to 46% for operating assistance funding in Montana.

- **FHWA and FTA CMAQ Program**: Formula funding disbursed to states to support surface transportation projects and other related efforts that contribute to air quality improvements and provide congestion relief. The Missoula MPO is responsible for prioritizing CMAQ funds throughout the region; Mountain Line already receives a portion of this money.
- **FTA Section 5307 Urbanized Area Grant Program:** Formula funding based on population density and provision of transit services. With an urbanized area population less than 200,000, MUTD can use 5307 funds for operations.
- **JARC and New Freedom Programs:** The FTA Section 5316 and 5317 programs can fund operations for special services aimed at commuters or individuals with disabilities. Such operating assistance should not be considered as ongoing support, but rather for demonstration or pilot program support.
- **FTA Section 5310 Transportation for Elderly Persons and Persons with Disabilities:** Formula funding to states for the purpose of assisting private nonprofit groups, and under certain circumstances, public agencies, in meeting transportation needs of the elderly and persons with disabilities. If local non-profits are not in a position to use these funds, and actual service is contracted out, MUTD may be eligible to "capitalize" operating costs for these services. These funds can also be used to support administrative tasks associated with mobility management functions.
- **TIGER:** Works directly with public transportation agencies to implement new strategies for reducing greenhouse gas emissions and/or reduce energy use within transit operations.
- **Veterans Transportation and Community Living Initiative Grant Program:** The Department of Transportation has joined with the Departments of Veterans Affairs,

Labor, Defense, and Health and Human Services to establish an initiative that will improve transportation options and mobility for America's veterans, service members, and their families.

Local funding opportunities - operations

Transit agencies and cities around the nation are increasingly looking for new and creative mechanisms to supplement traditional sales or property tax funding for transit. This section summarizes local funding opportunities that could be used to enhance transit service. A number of these sources would require extensive additional study, changes to local policies or laws, and extensive outreach with affected residents and/or businesses.

- **Transportation Utility Fee (TUF)**: A TUF is a monthly fee to users based on use of the transportation system. Fees are typically assigned proportionately to road usage based on land use generation, trip intensity, vehicle miles traveled (VMT) or, in some cases, a flat rate. Because the fee is assessed on all transportation system users, TUFs are a stable revenue source for backlogs, operations, and maintenance. TUFs can be used in urban centers and along transit corridors to fund localized mobility needs including transit operating expenses. Mountain Line would work in partnership with the City of Missoula and the MPO to implement the TUF.

Corvallis, Oregon Transportation Utility Fee

Corvallis, Oregon, implemented a TUF in 2011 to generate revenue for the Corvallis Transit System (CTS) operations. A portion of the fee also replaced transit fares, allowing riders after February 1, 2011, to get on any CTS or Beaver Bus without paying a fare.

As of February 1, 2012, the utility fee amounted to $3.73 per month for a single-family residential customers and $2.58 per housing unit for a multi-family residential customer. The amount for commercial and industrial customers is based on the type of business, and as a result, is different for each one. The fee is reexamined every year based on a trip generation methodology developed by the Institute of Traffic Engineers. The model estimates the average number of vehicle trips generated by a property based on the type of property it is. In its first year, the fee generated $850,000 or $15.61 per capita. If a similar fee were instituted in Missoula, Mountain Line could potentially generate over $1 million annually.

- **Special Assessments or "Opt-Ins:"** A tradeoff to this approach is that more of the service area (and potentially beyond) will not have access to regular transit service. Some transit districts allow neighboring communities or underserved areas to "opt-in" to service by covering a portion of the cost of service. For areas outside the Mountain Line service areas, this would likely include the full service costs. In areas inside the district, it could take the form of an additional assessment that reduces the operating subsidy to a level concurrent with minimum requirements for fare recovery.
- **Sponsorships and Advertising:** Although the opportunity for a large amount of operating funds is limited, Mountain Line could initiate a sponsorship and advertising program. This program would sell ad space on buses and at stations.

FUNDING POLICY RECOMMENDATIONS AND ACTION ITEMS

Figure 22 Summary of Funding Policy Recommendations and Action Items

Type	Item Number	Policy/Action Description
Policy	5.1.1.p	Foster public private partnerships and partner with the City and County to actively increase local funding sources.
Action Item	5.1.1.a	Explore options to create, expand or explore local district based revenue sources.
	5.1.2.a	Coordinate Mountain Line and ASUM services to target FTA capital funds.
	5.1.3.a	Maintain staff capacity to aggressively monitor and pursue FTA and Federal grant programs.

6 ACTIONS AND PHASING

This section provides a brief summary of identified needs and issues in each of the major plan elements and summarizes key policy recommendations and action items.

SUMMARY OF KEY LRTP CONCEPTS

The LRTP provides a framework for Mountain Line and the Missoula community to deliver a complete transit system that puts the passenger first, makes transit a convenient and dignified travel option, and helps build a vibrant and healthy community. To implement the LRTP, continued and heightened coordination will be needed between Mountain Line, the City/County of Missoula, the University of Montana, private developers, and the business community. Concerted effort will also be needed to grow transit operating funding to implement the frequency and span of service recommended in Phases III – V of the LRTP. The policy recommendations and action items summarized below will help Mountain Line to:

- **Focus Investment:** Identify key transit corridors to support high ridership that align with projected job and population growth patterns.
- **Improve Service Quality:** Make transit more competitive with the private auto by enhancing travel time and reliability and improving service in key transit corridors.
- **Foster Community:** Leverage transit investments to support growth management and development goals, enhance placemaking, and achieve environmental goals.
- **Develop and Foster Partnerships:** High quality transit systems require investment from many public and private stakeholders. For Mountain Line to succeed it needs to build and maintain political, financial, capital development, and marketing support from multiple regional partners.
- **Develop a Multimodal System:** Elevate the integration of transit capital development with the expansion of walking and biking infrastructure particularly in priority transit corridors.
- **Provide Education and Outreach:** Develop or enhance education and financial incentive programs that support transit use in Missoula.
- **Monitor Progress:** Create performance measures to help the City monitor LRTP implementation and changes in transit performance levels and quality.
- **Calculate Return on Investment:** Track mode shift, improved health and safety, and reduced emissions to demonstrate return on investment.

SUMMARY OF LRTP POLICY RECOMMENDATIONS AND ACTION ITEMS

Category	Type	Item Number	Policy/Action Description	Phase	Implementation Responsibility	
					Lead	Partner
Service	Policy Recommendations	3.1.1.p	Designate a Primary Transit Network to focus service investment and development.	Phases I-V	Mountain Line	City/County
		3.1.2.p	Develop a regional PTN sub-brand to communicate speed, reliability, frequency, and span of service.	Phase III	Mountain Line	TDM partners
		3.1.3.p	Monitor system performance of the system including the PTN against the performance criteria listed in the LRTP.	Phases I-V	Mountain Line	
	Action Items	3.1.1.a	As a key partner in TDM delivery in the region, implement the recommendations in the Missoula TDM Program Review and Recommendations study (2012).	Phase I	Mountain Line	TDM partners
		3.1.2.a	Create a Transit Corridor Capital Program to develop speed and reliability and passenger amenity improvements along the PTN.	Phases I	City/County	Mountain Line
		3.1.3.a	Initiate a human and social transportation service roundtable with area service providers to brainstorm opportunities for coordination, improved service, and cost savings.	Phase I	Mountain Line	Human and social transportation service providers
		3.1.4.a	To monitor performance, collect data and do a full assessment of the system against PTN criteria every two years.	Phases I-V	Mountain Line	
Land Use	Action Items	3.2.1.a	Designate a transit-oriented developer liaison to ensure new development is appropriately located along the PTN.	Phase I	Mountain Line	

Category	Type	Item Number	Policy/Action Description	Phase	Implementation Responsibility	
					Lead	Partner
		3.2.2.a	Work with the City and County of Missoula to add regulatory language to the existing Transit-Overlay Zoning code Section 20.25.080 based on the adopted PTN.	Phase II	City/County	Mountain Line
Capital Improvements - Vehicle	Policy Recommendations	4.1.1.p	Develop specifications for future fleet replacement that provide high-amenity, low-floor vehicles for PTN services.	Phase III	Mountain Line	
	Action Items	4.1.1.a	Research opportunities for hybrid vehicles to reduce future exposure to fuel price increases.	Phase III	Mountain Line	
Capital Improvements - Image and Amenity Improvements	Policy Recommendations	4.2.1.p	Develop a tiered station stop designation program that would allow Mountain Line to identify pilot stops where a higher level of amenity and information could be provided.	Phase I	Mountain Line	
	Action Items	4.2.1.a	Conduct a transit station inventory to document existing conditions of each transit station. This information would be used to inform the tiered station designation program recommended above.	Phase II	Mountain Line	
		4.2.2.a	Continue to implement Mountain Line's existing Transit Access Guidelines to provide guidance to developers, the City, and the County to ensure safe and accessible bicycle and pedestrian access to transit stations.	Phase I	Mountain Line	Developers, City/County
		4.2.3.a	Create wayfinding design guidelines to help people travel to and from transit stations.	Phase I-V	City/County	Mountain Line/ U of Montana
		4.2.4.a	Partner with businesses to evaluate the feasibility of district funding mechanisms,	Phase II	Mountain Line	Downtown Association, local

Category	Type	Item Number	Policy/Action Description	Phase	Implementation Responsibility	
					Lead	Partner
			such as a Business Improvement District, that can help fund transit information and marketing programs and make streetscape and transit stop improvements.			businesses
		4.2.5.a	Collaborate with the City of Missoula to ensure City codes and policies promote, require, and/or create incentives to provide transit stop amenities, marketing, or information features.	Phase I	City/County	Mountain Line
Capital Improvements - Multimodal Access	Policy Recommendation	4.3.1.p	Support each PTN corridor with bicycle infrastructure and end-of-trip facilities, such as bicycle parking and on-board bicycle racks.	Phases I-V	Mountain Line	City/County
		4.3.2.p	Integrate Universal Design principles into all station design to improve access for the visually, acoustically, and mobility-impaired.	Phases I-V	Mountain Line	City/County
	Action Items	4.3.1.a	Provide clearly visible and consistent wayfinding signage between transit facilities and all pedestrian and bicycle access points.	Phases I-V	City/County	Mountain Line
		4.3.2.a	Develop an interagency working group to facilitate coordination between the City of Missoula, the Missoula MPO, Mountain Line, and the University of Montana to develop design standards for transit facilities and access to transit.	Phase II	Mountain Line	ASUM, City/County
		4.3.3.a	Collaborate with the City of Missoula to install high visibility crosswalk treatments and priority signal treatments for pedestrians to ensure safe and	Phases I-II	City/County	Mountain Line

Category	Type	Item Number	Policy/Action Description	Phase	Implementation Responsibility	
					Lead	Partner
			comfortable crossings within the PTN.			
Capital Improvements - Protections from Traffic Delay	Policy Recommendations	Policies related to signal treatments and timing are in the hands of the City and County. Mountain Line should consider options for enhancing transit speed in partnership with the City and County of Missoula.				
	Action Items	4.4.1.a	Collaborate with the City to build curb bulbs at intersections with transit stops and high pedestrian volumes, particularly where lane widths allow cars to pass buses stopped at the curb.	Phase III	City/County	Mountain Line
		4.4.2.a	Monitor transit travel speed on the PTN and study signal and right-of-way enhancements to improve transit speed when travel speeds or reliability drop below minimum standards.	Phase III	City/County	Mountain Line
		4.4.3.a	Where significant new development is expected, conduct comprehensive corridor studies for key PTN corridors to examine future travel demand and multimodal strategies to accommodate corridor demand and efficient travel times. These studies should address future high capacity transit needs to ensure that recommended improvements do not preclude future development of more intensive, protected right-of-way transit service if merited.	Phase III	City/County	Mountain Line
		4.4.4.a	Recommend that the City implement a policy that traffic signal priority (TSP) be implemented as a standard when intersections are redesign and signal system are replaced in PTN corridors.	Phase I	City/County	Mountain Line

Category	Type	Item Number	Policy/Action Description	Phase	Implementation Responsibility	
					Lead	Partner
Major Facilities	Action Items	4.5.1.a	Collaborate with the Southgate Mall to determine the best location for the Southgate Mall transit center.	Phase III	Mountain Line	Southgate Mall
		4.5.2.a	Work with neighboring property owners of the current bus garage to determine if bus garage expansion is feasible and affordable.	Phase IV	Mountain Line	Neighboring property owners
		4.5.3.a	Partner with the Downtown Association, the City, and private developers to update or redevelop the downtown transit center when the lot north of the center is redeveloped.	Phase V	Mountain Line	Downtown Association, City, developers
Funding	Policy	5.1.1.p	Foster public private partnerships and partner with the City and County to actively increase local funding sources.	Phases I-V	Mountain Line	City, County, community
	Action Item	5.1.1.a	Explore options to create or expand local district based sources.	Phase I	Mountain Line	City/County
		5.1.2.a	Coordinate Mountain Line and ASUM services to target FTA capital funds.	Phase I	Mountain Line	ASUM
		5.1.3.a	Maintain staff capacity to aggressively monitor and pursue FTA and Federal grant programs.	Phases I-V	Mountain Line	

APPENDIX A PTN SCORING

GIS-based analysis was conducted to measure potential PTN corridors based on four critical factors of transit demand: residential density, employment density, ridership on existing transit services, and the presence of "anchor" activity centers. The scoring system is shown in Figure below. The maximum score a corridor could receive is 70 points.

Figure 23 PTN Scoring Map