Appendix A: Community Outreach

I. APPROVED ACTIVATE MISSOULA 2045 PUBLIC PARTICIPATION PLAN

The following Activate Missoula 2045 LRTP Public Participation Plan was approved by the Transportation Policy Coordinating Committee on September 15, 2015 in the initial phase of the Activate Missoula 2045 Project. The public participation plan is consistent with the MPO's overall public outreach requirements. MPO staff worked with LSA and Alta (project consultants) to develop a Public Participation Plan that outlined the general approach and methods to meaningfully involve the public in the 2016 LRTP update. This plan was used as a guide for all outreach activities.

PUBLIC PARTICIPATION PLAN

INTRODUCTION

The Missoula Metropolitan Planning Organization (MPO) is the agency tasked with developing a Long Range Transportation Plan (LRTP), which sets at least a 20-year vision for the Missoula region's transportation system. The long-range transportation plan is updated every four years to reflect the changing dynamics of the area and was last updated in 2012 and looked at a 2040 horizon-year. The MPO has already started to work on creating a plan for the year 2045.

Developing a long range plan requires two key elements: technical work and community engagement. Ultimately, the LRTP is only adopted after considering public input and recommendations from professional transportation planners. Public involvement is a critical element in the development and adoption of the 2045 Long Range Transportation Plan, given the significant sociocultural, economic, health, and environmental impacts of transportation on all citizens in the region.

This Public Participation Plan creates widespread opportunities for citizens to be informed and engaged throughout the development of the 2045 Long Range Transportation Plan. The purpose of the Public Participation Plan is to provide a roadmap to systematically achieve goals and objectives for public involvement, ensuring diverse and inclusive public input.

REQUIREMENTS

This Public Participation Plan complies with the objectives outlined in the Missoula Urban Transportation Planning Process Public Participation Plan last revised in January of 2015. The Public Participation Plan also meets the federal requirements for public involvement as identified in 23 CFR 450.316 and 23 CFR 450.324.

ELEMENTS

The following elements will be integral components to a comprehensive Public Participation Plan:

BRANDING

A brand and tagline for the LRTP have been developed as an initial step. The plan will be branded as "Activate Missoula" and will have the below logos and banners utilized throughout the project and beyond.

The project brand will make the planning effort immediately recognizable during public presentations and meetings, special events, and in plan materials. Branded Activate Missoula materials will be clear and concise and will connect key messages with targeted audiences. QR codes can be provided in printed materials, which will lead the recipient directly to the project website.

ELECTRONIC OUTREACH

The following means of electronic public outreach will be provided as part of the 2045 LRTP.

Website

Throughout the life of the 2045 LRTP update process and beyond, a project website will be maintained by the Missoula MPO. The site will be separate from any City, County or MPO website and will have the URL: http://www.activatemissoula.com The consultant team will design and build the website, however the MPO will maintain the domain registration and hosting so that the site may be used in future updates and the MPO will always be in control of public feedback, survey results and other information collected by the website. In addition to the main website there will be several key features oriented at gathering public participation with greater flexibility than at a conventional public workshop or open house. A link to the LRTP update website will be maintained on both the City and County websites.

Interactive Mapping

The project website will include an interactive mapping portal which will be in operation from before the first public workshop until the existing conditions analysis phase of the project is complete. It is expected that this feature will be enabled for at least two months. The interactive mapping portal will allow the public to leave map based feedback much as they would with a marker at a traditional public meeting. Visitors to the website will be able to leave points which clarify needs or concerns they have for the existing system as well as lines to denote routes that need improvement or routes that they utilize in their daily lives. Comments will be configured to be left in relation to motor vehicle, transit, bicycling or walking. The project team will download the results and combine them with the forms of in-person hard copy participation for analysis.

Surveys

At least two surveys will be conducted for the LRTP project. The Bureau of Business and Economic Research (BBER) at the University of Montana has been contracted by the MPO to administer a statistically valid survey of a random sampling of Missoula area residents regarding the region's transportation issues and how residents travel throughout the valley. The survey will be administered in late September through October, with final results expected in November. The information gathered from the BBER survey will supplement information gathered through other public input opportunities, including the interactive mapping, public meetings, and community events.

An additional survey is expected to be created in coordination with the interactive mapping exercise that will be posted on the project website. This survey will seek to obtain additional more detailed information from Missoulians about their issues, concerns, travel habits, priorities for transportation funding and projects, and their future vision for Missoula and the region as it pertains to transportation. It is intended that this survey will be administered through November, prior to and following the first Public Meeting, and the information gathered will be analyzed and presented, in addition to the results of the BBER survey. All information will be available on the project website and shareable via weblink and promoted through the various distribution outlets and media.

Social and Electronic Media

The 2045 LRTP will utilize the existing social and electronic media outlets of the Missoula MPO, such as through the MPO's Facebook page and Constant Contact account. Other agencies and partners will also be asked to assist with disseminating information and encouraging public participation, such as Missoula in Motion, the Bike Walk Alliance of Missoula, Missoula Institute for Sustainable Transportation, and others. The objective will be to leverage the existing user base who already follow the MPO and other groups tied to transportation in the Missoula region.

Leveraging these resources may have the added benefit of increasing the number of individuals who follow the Missoula MPO through Facebook throughout the process. Ideally, informational items that are posted to the project website will also be posted to Facebook and sent out via Constant Contact. Additionally, reminders of upcoming public meetings or other events will be published through these electronic media outlets.

Project Newsletter

A periodic newsletter will be produced that describes work in progress, results achieved, preliminary recommendations, and other related topics. The newsletters would be published and distributed to all members of the MPO's Transportation Policy Coordinating Committee (TPCC) and Transportation Technical Advisory Committee (TTAC), as well as the committees that will be set up specifically for the 2045 LRTP, including the Citizen's Advisory Committee (CAC) and the Technical Advisory Committee (TAC). The newsletter will also be available for agency staff, elected officials, and members of the public via electronic media and the project website.

IN-PERSON OUTREACH

The following means will be utilized to conduct in-person public involvement at specific points during the planning process:

Stakeholder Outreach

The project team will meet with up to ten (10) stakeholder groups for detailed discussions about the transportation system, policy and potential improvements. These meetings will take place during the first week in November 2015.

Public Meetings/Open Houses

The Missoula LRTP planning process will feature three larger-scale public meetings/open houses. Each of the public meetings/open houses will use an assortment of the public outreach techniques listed in Table 1 of the Missoula Transportation Public Participation Plan. These will include printed notification, newspaper advertisement (paid for by the MPO-if desired), notices on the Development Services Website, the project website (www.activatemissoula.com), Facebook and other MPO-driven social media, project and other email lists, and a press release sent to local media outlets suitable for pickup by local TV and radio stations. All project related informational releases will include:

- Project description;
- Meeting or other participation process purpose;
- Location, time, date(s), and details regarding the involvement opportunity
- Sources for additional documentation (if applicable); and
- Contact name and information for further questions.

Communication methods at these public meetings will include poster displays, PowerPoint presentations including various graphics, photos and videos, and takeaway written materials.

Public Meeting #1
The first will occur during the first week in November and will be focused on the existing conditions and deficiencies within the study area. It would begin with a short presentation by the project team, followed by questions and answers, and then ending with informal one-on-one discussions between the public and members of the project team. Additionally, as part of this phase of the project, a separate bicycle facilities specific workshop will be scheduled using the membership of BWAM and other local groups to advertise.

Public Meeting #2
The second public meeting will occur during the needs assessment in Task 5 and take place after the consultant has met with any identified groups and after completion of initial field studies and defined transportation-related problems. The transportation needs will be identified through data-drive analysis of the existing transportation network (motorized and non-motorized) as well as public input from Meeting #1, surveys and web-based outreach (website, social media, email). This meeting would review the identified problems with the public to ensure that all of the major transportation problems have been included in the analysis.

Public Meeting #3
The third public meeting would occur toward the end of the planning process, either at, or just prior to the draft plan deliverable in Task 9 after a preliminary set of recommendations had been developed. The meeting would allow for discussion of the types of recommended improvements and to receive initial feedback from the community.

Responsibilities:
The Missoula MPO will assist the project team by locating and reserving venues, assisting with press releases, and providing light refreshments at events.

Community Events

Traditional public involvement strategies rely on asking members of the public to take time out from their lives to attend meetings or events. This approach can generate interest in the project, but it will only appeal to a certain spectrum of the population. As the project progresses, both the project team and the MPO will look at event calendars to determine if there are opportunities to build outreach for the Missoula LRTP within existing events that people are already going to. Consultant team attendance at these events would be planned around staff or committee meetings, fieldwork, and other project tasks in order to make the best use of the project budget; we do not anticipate making individual trips to Missoula for the attendance of a community event. Missoula MPO staff will also look for opportunities to represent the LRTP project at community events or meetings without consultant participation, such as community forums and councils, neighborhood meetings, farmer's markets, sporting events, cultural and art festivals, etc. The goal will be to attend a broad spectrum of events sponsored by organizations that represent the community's diverse demographics.

Committee Meetings

Throughout the project the Missoula MPO and the project team will provide regular updates and seek approval/adoption of interim and final deliverables. Regular meetings of the CAC and TAC will occur throughout the plan process in order to seek input on plan deliverables and help to develop recommendations. Meetings related to approval of deliverables, recommendations, and of the plan itself will take place through the TTAC and TPCC and will be publicly noticed as required through various means. The updates will be included in the agendas for these meetings and open to the public. Consultant team staff will attend up to four (4) committee meetings (TTAC, TPCC, TAC, and/or CAC) throughout the plan process. Where possible, the project team will try and combine these meetings with public meetings or other activities that make project related travel efficient.

GETTING THE WORD OUT

Successful public outreach is dependent on project news reaching a wide variety of stakeholders, including typically underrepresented members of the community, including young people and people with disabilities. The project will collect the email addresses of interested members of the community though the project website and at project related events. Information regarding the project will be sent to these individuals. In addition, the project will make use of the combined potential contained within other civil, social service, faith-based, or other entities to get critical project related entities. These groups will be asked to circulate public workshop notices and to point interested parties to the project website. The Missoula MPO is required to keep a roster of these organizations.

PUBLIC COMMENT

In addition to public comment received through the project website and through in-person means, the Consultant team will make its lead staff available to all interested parties for the purposes of receiving comments and answering questions. This will be accomplished by several methods, including:

- An 800 telephone number to LSA (published in all materials);
- Email access to our lead staff (published in all materials);
- A Post Office box for written comments to the team; and
- Attendance at select committee meetings including the TPCC, TTAC, CAC, boards and commissions, and other local group meetings.

ACCESSIBILITY

Project related meetings and outreach events will be held in locations and at times of day that are accessible to residents of low and moderate income neighborhoods and that are accessible to people with disabilities (in compliance with 23 CFR 450.316, Title VI, and Americans with Disabilities Act (ADA) requirements).

II. ADVERTISING AND PUBLICITY

The following tables summarize the various methods and outlets the MPO used to advertise and publicize the Activate Missoula 2045 plan and process, including opportunities for public involvement.

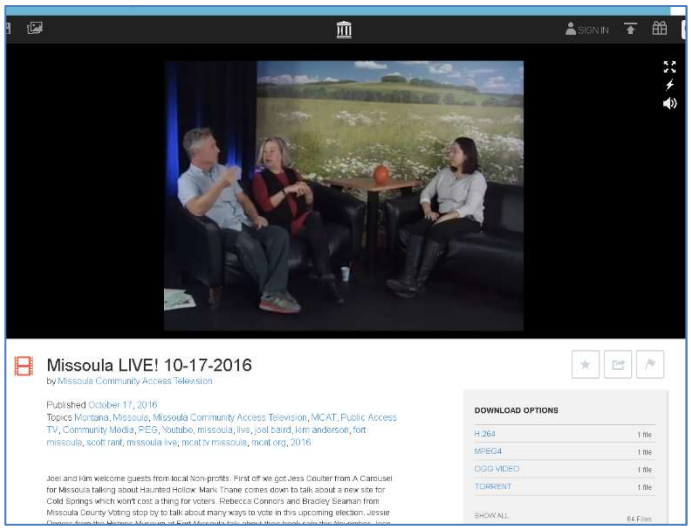
Television and Radio Interviews		
Outlet	**Date**	**Interview**
KVGO	10/23/2015	Interview with Peter Christianson
103.3	11/2/2015	Interview with Craig
MCAT	10/17/2015	Interview with Joel B.
MCAT	5/16/2016	Interview with Joel B.
KVGO	5/16/2016	Interview with Peter Christianson
103.3	5/23/2016	Interview with Craig
MCAT	10/17/2016	Interview with Joel B.
103.3	10/19/2016	Interview with Craig
KPAX	11/18/2016	Interview with Dennis Bragg

Radio Ads		
Outlet	**Date**	**Type**
103.3	10/26/2015 – 11/2/205	30-sec
103.3	5/16//2016 – 5/23/2016	30-sec

Newspaper Ads		
Outlet	**Date**	**Type**
Indy	10/23/2015	2/5 vertical
Missoulian	11/1/2015	Front page of Montana section
Indy	5/18/2016	2/5 vertical
Missoulian	5/22/2016	Front page Montana section

Press Releases		
Outlet	**Date**	**Type**
City	10/22/2015	Sent to media by City Communications Director
City	5/16/2016	Sent to media by City Communications Director

Letter to the Editor		
Outlet	**Date**	**Type**
Missoulian	10/31/2015	From TPCC Chair to Community encouraging participation



Sample Radio Ad Script for Summit #2

You're invited to get involved, share your ideas and shape Missoula's future for next 30 years of walking, bicycling, transit and driving projects at the 2nd Long Range Transportation Plan Summit.

Join us on Tuesday, May 24th at the Missoula Children's Theater. Discuss different transportation challenges that impact Missoula and explore how goals and improvements are prioritized and funded through an interactive session. We'll also have an update on the developing Bike Master Plan.

The May 24th meeting starts at 5:30pm. Visit activatemissoula.com for more information.

Newsletters		
Outlet	**Date**	**Message**
MPO Newsletter	10/7/2015	Advertise project launch, website and kick-off meetings
Missoula Downtown Association	10/20/2015	Advertise project launch, website and kick-off meetings
Missoula County Community Planning Services	10/15/2015	Advertise project launch, website and kick-off meetings
Sustainable Business Council	10/29/2015	Advertise project launch, website and kick-off meetings
MPO Newsletter	11/13/2015	Summarize kick-off, invite public to visit website, take survey
MPO Newsletter	12/16/2015	*Update on website/online survey, reminder for Dec. 31 deadline for comments
MPO Newsletter	5/10/2016	Update on website, new online surveys, next public meeting
MPO Newsletter	6/15/2016	Request to take survey on Goals and performance measures
MPO Newsletter	10/17/2016	Advertising the 3rd summit
MPO Newsletter	10/26/2016	Request to take survey on mode split goal and scenarios

Community Listserve Posts	
Outlet	**Date**
Development Services Newsflash	10/22/2015
Weekly City News Digest	10/23/2015
Missoula gov	12/15/2015
Weekly City News Digest	5/12/2016
Missoula Community Listserve	10/11/2016
Missoula Community Listserve	10/19/2016

Facebook posts				
Post	**Date**	**People reached**	**Shares**	**Description**
Website link	10/14/2015	198	1	Link and information about the LRTP Update website posted
Bicycle facility workshop graphic	10/19/2015	439	4	Information posted on the Bicycle Facility Workshop, including date, time and location
Wiki-map info & link	10/21/2015	203	0	Posted a link and information about the website's wikimap to encourage people to comment on the transportation network
Bicycle Facility Workshop	10/26/2015	2193	1	Inviting public to attend workshop
active transportation summit post	10/29/2015	569	5	Inviting public to discuss local transportation at workshop
wiki-map link	11/19/2015	38	0	Posted a link and update about the online wikimap
thank-you post and info about public workshops	11/6/2015	124	0	General info about the Transportation Summit kick-off event, with photos
bike workshop post	11/5/2015	99	0	Highlight success of bike workshop during kick-off week
bike workshop reminder	11/4/2015	199	1	reminder about the bike facility planning workshop
kick-off week reminder	11/3/2015	38	0	Reminder about two public input workshops happening this week
Missoulian editorial	11/2/2015	278	1	Missoulian article encouraging public to help set transportation

link				priorities
transportation summit reminder	10/27/2015	154	0	Advertised as exciting opportunity to help give feedback on transportation needs
wiki map reminder	12/15/2015	51	1	post reminding people to participate in the online, interactive wiki map prior to Dec. 31
Reminder for wiki map	12/16/2015	23	0	Shared from transportation planning page
Survey reminder	12/17/2015	76	1	Reminder to complete survey by Dec 31st
wiki map reminder	12/31/2015	215	1	Final reminder to add comments to the wiki map
LRTP website reminder	3/28/2016	124	1	Article about equitable active transportation with reminder to visit the activate Missoula website.
Public Summit #2	4/28/2016	12		Updating people that the next public meeting is may 24th
Press Release for Summit	5/16/2016	308	2	Inviting people to identify and prioritize transportation projects at the next public meeting
Public Summit #2	5/18/2016	1718	6	description of summit, including update on the bicycle master plan
Public Summit #3	10/11/2016	1147		Detailed invitation to 3rd public summit, open house style
Transportation summit #3 kick off	10/17/2016	1664	12	20 likes! Another detailed invite to open house
Missoulian article about LRTP	10/19/2016	239	1	Missoulian article about open house
Summit 33 Final Reminder	10/20/2016	967	1	final reminder for summit
Missoula Current Article	10/24/2016	63		Post w/ article thanking everyone for coming

Other advertising and publicity	
Type	**Where**
Posters	Distributed to multiple locations for Summit 1 # 2
Business cards w/ website info	Approx. 100 distributed to various locations and partners throughout the process

III. INTERAGENCY CONSULTATIONS

Introduction and Purpose

Pursuant to the requirements of the FAST Act, the Missoula MPO consulted with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation, and safety and security concerning the development of the 2016 LRTP Update.

With respect to natural resources, environmental protection, conservation, and historic preservation, the consultation involved (a) comparison of the LRTP with available State conservation plans and maps, and (b) comparison of the LRTP to available inventories of natural or historic resources.

With respect to safety and security, the consultation involved input from safety and security agencies regarding (a) identification of critical facilities and transportation elements; (b) clarification of the role of transportation operators, the MPO, and MDT in ensuring the safety of the transportation system; and (c) discussion of how to address the statewide Comprehensive Highway Safety Plan.

Who Was Contacted and Who Participated

To encourage agency input, the MPO conducted two separate meetings on September 8, 2016, the first with safety and security agencies and the second with resource agencies. The MPO contacted 12 resource agencies and 14 safety and security agencies by e-mail. Agencies in each group were invited to attend the meetings or send comments. Three agency representatives attended the resource agency meeting and a fourth e-mailed comments. Six representatives attended the safety and security meeting. Table 1 lists the agencies and representatives contacted and invited to participate in the consultation process, and notes those agencies that participated.

How Information Was Obtained

Consultation Meetings: At the two meetings on September 8, 2016, representatives from resource agencies and safety and security agencies asked questions and provided comments about potential impacts of various LRTP projects on their respective areas of expertise.

Online Interactive Map: To facilitate agency review and comment, the e-mail invitations provided links to the interactive *2016 LRTP Update - Agency Consultation* map which contains multiple layers of environmental, resource and safety and security data. The map illustrated collector and arterial streets that involve the use of Federal transportation funds. Information on the map was displayed under two tabs – Natural Resource Agencies and Emergency Response & Safety Agencies. The map also included a Comments tab to an online form that allowed users to provide any additional considerations that have not been identified. Figure 1 and 2provide a snapshot of the data provided in the online interactive maps.

Table 2 summarizes input that the MPO received from agencies that participated in the consultation process. The table lists e-mail comments, interactive map entries and comments, and questions and comments from agency representatives present at the September 8, 2016 meetings.

Table 1: Interagency Consultation Contacts

Natural Resource Agencies		
Participated	Agency	Representative
	Montana Dept. of Natural Resources & Conservation	Liz Mullins
	U.S. Environmental Protection Agency Region 8	Tim Russ
	Montana Dept. of Environmental Quality	Mindy McCarthy
*	City of Missoula Historic Preservation Office	Leslie Schwab
	US Bureau of Land Mgt.	Jim Sparks
	Montana Fish, Wildlife and Parks	Ladd Knotek
*	U.S. Fish Wildlife Service	Mike McGrath
	U.S. Army Corps of Engineers	Christina Schroeder
	U.S. Army Corps / Engineers	Brenda Christensen
	U.S. Forest Service	Edward Butler
†	Confederated Salish & Kootenai Tribes	Gabe Johnson
*	Montana Dept. of Transportation - Helena	Vicki Crnich
Safety and Security Agencies		
Participated	**Agency**	**Representative**
*	Missoula Police Department	Sgt. Greg Amundsen
	Missoula County Sheriff's Dept.	Capt. Bill Burt
*	Montana Highway Patrol	Capt. Jim Kitchin
*	Missoula Fire Dept.	Chief Jason Diehl
	MDT Helena	Ed Toavs
	MDT- Missoula	Shane Stack
	FHWA Helena	Brian Hasselbach
*	Missoula County Office of Emergency Services	Adrian Beck
*	Missoula Emergency Services	Don Whalen
	Missoula Public Works	John Wilson
	Missoula County Public Works	Erik Dickson
	Missoula Airport Authority	Cris Jensen
	Montana Rail Link	Steve Werner
*	Mountain Line	Jeff Logan
***Attended September 8, 2016 Meeting**		
†Sent comments		

Table 2: Interagency Consultation Comments

Resource Agencies				
Date	**Input Type**	**Agency**	**Representative**	**Input**
9/8/16	Map Comment	U.S. Fish & Wildlife Service	Mike McGrath	9 bull trout habitat locations.
9/8/16	Meeting Comment	U.S. Fish & Wildlife Service	Mike McGrath	Grant Creek bike/pedestrian bridge requires consultation with USFWS office because the bridge crosses a creek designated as bull trout critical habitat
9/8/16	Meeting Comment	U.S. Fish & Wildlife Service	Mike McGrath	Stressed need to notify USFWS early after start of news project
10/25/16	E-mail	U.S. Fish & Wildlife Service	Mike McGrath	Confirmed 9 bull trout and 2 yellow-billed cuckoo habitat areas.
9/12/16	E-mail	City of Missoula Historic Preservation Office	Leslie Schwab	Map of Missoula's National Register Historic Districts (OPG, 2010)
10/17/16	E-mail	City of Missoula Historic Preservation Office.	Leslie Schwab	The Fairgrounds are also an historic district but are not on the map.
8/31/16	E-mail	Confederated Salish & Kootenai Tribes	Gabe Johnson	1. CKST will continue to pursue funding for a path along US 93 from St. Ignatius to the Wye (intersection of I-90 and US 93 despite a previous unsuccessful TIGER grant application. 2. CSKT and Missoula County should discuss how the Mullan Road Trails/Frenchtown Trails and the US 93 Path might mesh at some point.
9/8/16	Meeting Comment	Montana Dept. of Transportation	Vicki Crnich FW to Shane Stack	Suggestion for the MPO to provide a scoring sheet that would indicate whether there is a need for a cultural resource inventory, e.g., for Goal 7 or Goal 8
Safety & Security Agencies				
Date	**Input Type**	**Agency**	**Representative**	**Input**
9/8/16	Meeting Comment	Missoula Police Department	Sgt. Greg Amundsen	Question about the LRTP's role regarding traffic calming devices. The LRTP includes a general traffic calming “project” but no Federal funds are planned to be spent on these devices.
9/8/16	Interactive Map	Missoula Fire Dept.	Chief Jason Diehl	The Fire Code prohibits traffic calming devices (including roundabouts) unless approved by the fire code official."
9/8/16	Meeting Comment	Missoula Fire Dept.	Chief Jason Diehl	Provided Fire Bureau contact list, which includes the fire marshal’s office/fire prevention bureau and the fire department administration and requested their inclusion in the MPO’s notification list.
9/8/16	Meeting Comment	Missoula Fire Dept.	Chief Jason Diehl	The Fire Department is concerned about neighborhood access where traffic calming devices are installed,
9/8/16	Meeting Comment	Missoula County Office of Emergency Services	Adrian Beck	Asked whether snowplow routes have been mapped. The City has in fact mapped the routes.

10/20/16	E-mail	MDT, Missoula	Shane Stack, forwarding message from Vicki Crnich	Whatever is discussed in the LRTP regarding safety does not contradict Missoula's CTSP, e.g., if the Missoula LRTP emphasis areas aren't the same as those in the CTSP. From a FAST Act perspective, the performance measures for safety have been published.

Figure 1: Resource Map

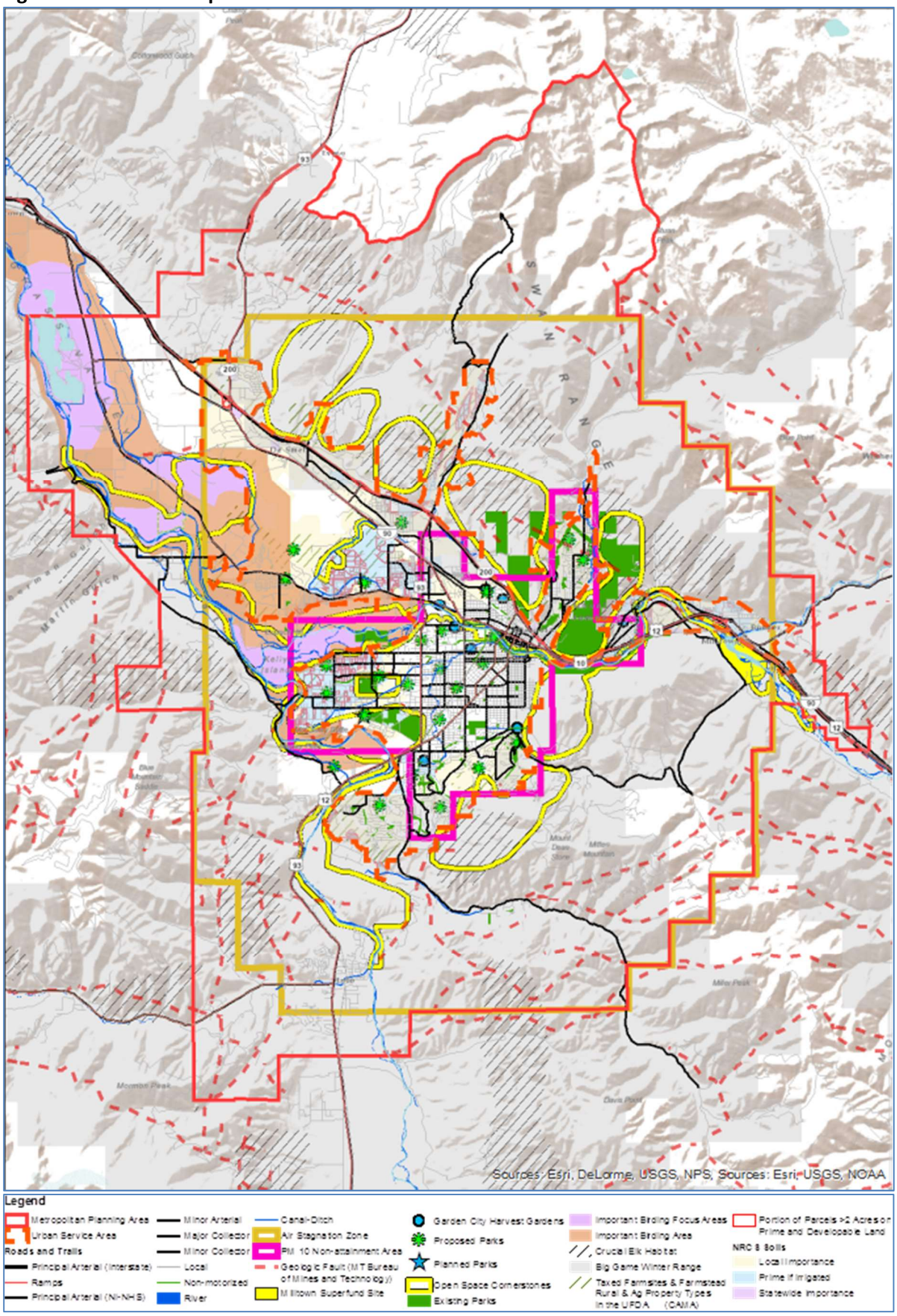
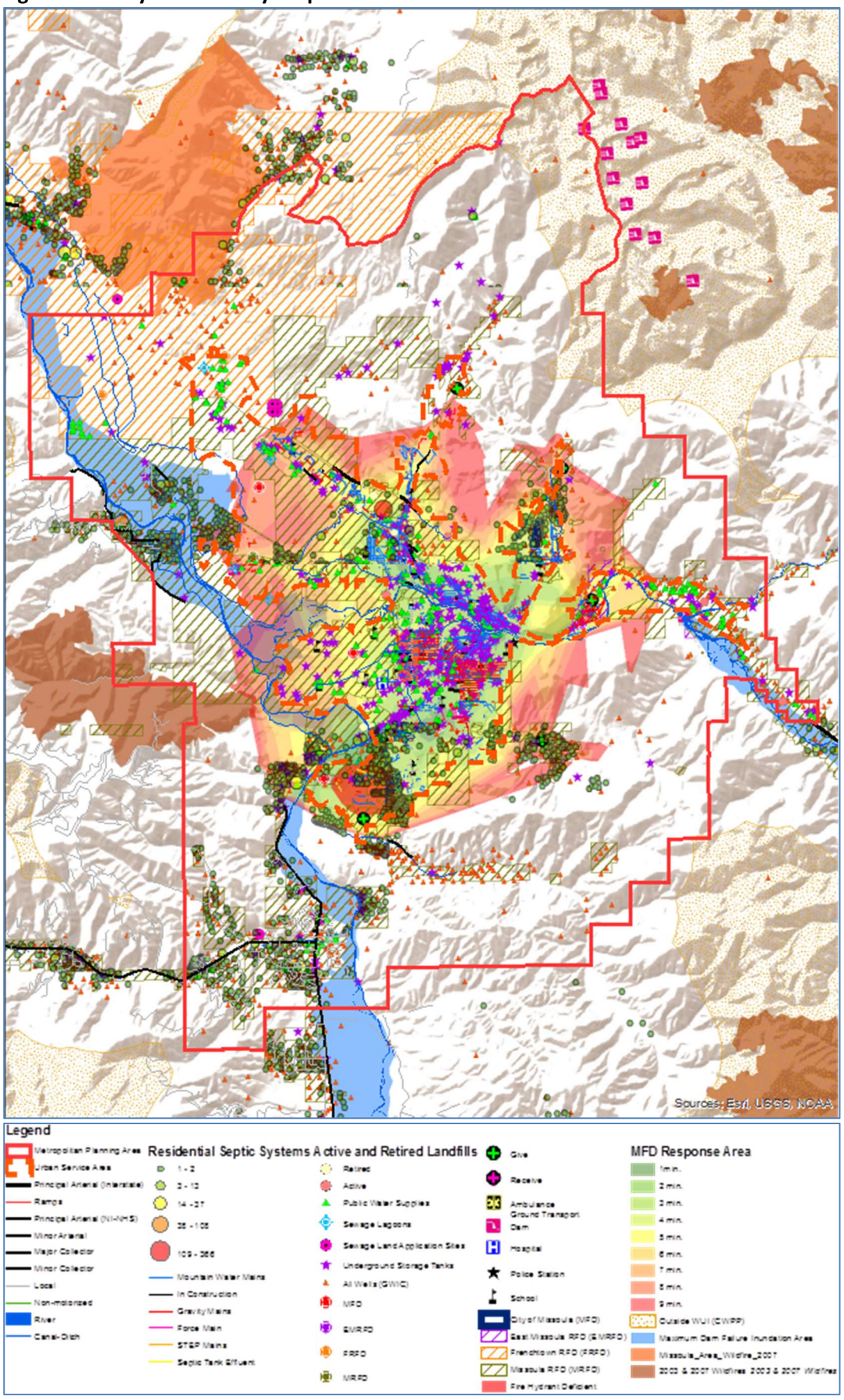


Figure 2: Safety and Security Map



IV. PUBLIC MEETINGS (SUMMITS, COMMITTEES, BOARDS, ETC.)

The following summarizes the dates and topics of various public meetings where the Activate Missoula 2045 LRTP was discussed, including large-scale public meetings (summits), Community Advisory Committee and Technical Advisory Committee meetings, MPO Transportation Technical Advisory and Transportation Policy Coordinative Committee meetings, and other agency/organization board or committee meetings. While this list is meant to capture all publicly held meetings, it may be possible that some have not been noted.

Group/meeting/event	Date	Staff attended	Description of agenda/discussion
TTAC	7/2/2015	Jessica Morriss	Jessica provided an update regarding the status of contracting with the selected consultant
TPCC	7/21/2015	Jessica Morriss	Jessica provided an update regarding the status of contracting with the selected consultant
Bike Ped Advisory Board	8/4/2015	Jessica Morriss	Jessica provided an update to the BPAB regarding the status of contracting with the selected consultant
TTAC	8/6/2015	Jessica Morriss	Jessica provided an update regarding the project team's work
TPCC	8/18/2015	Jessica Morriss	Jessica provided an update regarding the project team's work
Bike Ped Advisory Board	9/1/2015	Jessica Morriss	Jessica provided an update to the BPAB regarding the status of the LRTP, branding, website, and anticipated kick off dates
TTAC	9/3/2015	Jessica Morriss	Jessica provided an overview of the draft public participation plan; TTAC approved
Development Community Meeting w/ Development Services	9/11/2015	Jessica Morriss	Jessica provided an update to those in attendance from BIA, MOR, etc. about the upcoming LRTP update
TPCC	9/15/2015	Jessica Morriss	Jessica provided an overview of the draft public participation plan; TPCC approved
Downtown Master Plan Committee	9/17/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting.
Bike Walk Alliance of Missoula	9/23/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting; Jessica also requested the board assign someone to the CAC.
Mountain Line Board	9/24/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting.
Target Range HOA	9/30/2015	Aaron Wilson	Aaron provided an update, including information about the website and kick-off events
Parking Commission	10/1/2015	Jessica Morriss	Jessica informed the committee of the upcoming LRTP update and let members know about the website and 1st public meeting.
Bike Ped Advisory Board	10/6/2015	Aaron Wilson	Aaron provided an update, including information about the website and kick-off events; also requested the board appoint a member to the CAC.
Planning Board	10/6/2015	Dave Prescott	Dave provided an update, including information about the website and kick-off events
Missoula County Open Lands Committee Meeting	10/15/2015	Aaron Wilson	Aaron provided an update, including information about the website and kick-off events
Community Forum	10/22/2015	Jessica Morriss	Jessica provided an update, including information about the kick off events and website; requested community forum members to serve on CAC.
STAC	10/23/2015	Dave Prescott	Dave provided an update, including information about the website and kick-off events
River Road Neighborhood	10/26/2015	David Gray	Dave provided an update, including information about the website and kick-off events
County Parks & Trails	10/26/201	Aaron Wilson	Aaron sent email info to CAPS staff to distribute info about the kick off

Board	5		events to board members
Public Meeting	11/3/2015	All	Bicycle Network Planning Public Meeting - Public Library
Public Meeting	11/4/2015	All	Transportation Summit #1 - Holiday Inn Downtown
TTAC	12/3/2015	All	Staff provided a general update
TPCC	12/15/2015	All	Staff provided a general update
TTAC	1/7/2016	All	Staff provided a general update
TPCC	1/19/2016	All	Staff provided a general update
TTAC	2/4/2016	All	Staff provided general update; presented final BBER Transportation Survey Report
TPCC	2/16/2016	All	Staff provided general update; presented final BBER Transportation Survey Report
CAC meeting 1	2/23/2016	All	Staff introduced the LRTP process and purpose of CAC and discussed group priorities
TTAC	3/3/2016	All	Staff provided a general update
TPCC	3/15/2016	All	Staff provided a general update
City Council Public Works Committee	3/16/2016	Jessica Morriss	Jessica provided overview of purpose and role of MPO, LRTP, and an overview of 2015 BBER Transportation Survey
CAC meeting 2	3/22/2016	All	Staff reviewed results of Goals/objectives survey and presented information about mode split
TTAC	4/7/2016	All	Jessica provided an update and presented information about goals/objectives, performance measures and mode split
TPCC	4/19/2016	All	Jessica provided an update and presented information about goals/objectives, performance measures and mode split
Technical Advisory Committee meeting 1	4/25/2016	All	Review goals, objectives, performance measures, and ranking criteria; review draft project list
Community Forum	4/28/2016	Dave Prescott	Provided update on LRTP status and upcoming public meeting
Bicycle Pedestrian Advisory Board	5/10/2016	Jessica Morriss	Provided update on LRTP status and upcoming public meeting
Parks and Trails Advisory Committee	5/12/2016	David Gray	Provided update on LRTP status and upcoming public meeting
Downtown Master Plan Committee	5/19/2016	Jessica Morriss	Provided update on LRTP status and upcoming public meeting
TTAC/TPCC joint meeting	5/24/2016	All	Provided an overview of that evening's Transportation Summit #2
Public Meeting	5/24/2016	All	Transportation Summit #2 - Missoula Children's Theatre
TTAC	6/9/2016	Aaron and Jessica	Provided an overview of Transportation Summit #2 results and other public input information; funding allocation discussion
TPCC	6/21/2016	Aaron and Jessica	Provided an overview of Transportation Summit #2 results and other public input information; funding allocation discussion
Technical Advisory Committee meeting 2	7/21/2016	All	Review goal ranking, goal 8 results; review proposed goal weighting and scoring; review refined project scoring criteria
CAC meeting 3	8/2/2016	All	Discussed goal weighting and goal 8 inclusion; discussed refined project scoring criteria; reviewed public involvement; discuss scenario development
Joint TTAC/TPCC meeting	8/16/2016	All	Discussed goal weighting and goal 8 inclusion; discussed refined project scoring criteria; reviewed public involvement; discuss scenario development
Mode Split Subcommittee	8/26/2016	All	Discussed options and parameters for setting a mode split goal; approved 3 mode split goal options
Technical Advisory Committee	9/2/2016	Aaron and Jessica	Review/approve mode split options and develop funding allocations for each (Scenarios)
TTAC	9/8/2016	Aaron and	Review/approve mode split and funding allocation options

		Jessica	
TPCC	9/20/2016	Aaron and Jessica	Review/approve mode split and funding allocation options
Technical Advisory Committee	10/4/2016	All	Review preliminary project rankings and new funding allocation option
Bicycle Pedestrian Advisory Board	10/4/2016	Jessica and Aaron	Provided update on LRTP status and upcoming public meeting
Planning Board	10/4/2016	Jessica Morriss	Provided update on LRTP status and upcoming public meeting
City Council Public Works Committee	10/5/2016	Jessica and Aaron	Provided update on LRTP status and upcoming public meeting
Final Public Meeting/Open House - Summit 3	10/20/2016	All	Open house with interactive stations of plan process, feedback on mode split goals and scenarios sought
CAC meeting 4	10/25/2016	All	Presented results of public input from Open House and obtain feedback on mode split goal and scenario preferences
TTAC	11/3/2016	Jessica and Aaron	Presented results of public input from Open House and CAC, and obtain recommendation on mode split goal and funding scenario
TPCC	11/15/2016	Jessica and Aaron	Presented results of public input from Open House and CAC, and obtain recommendation on mode split goal and funding scenario
Bicycle Pedestrian Advisory Board	12/6/2016	Aaron and Ben Weiss	provided overview of draft Bike Master Plan
TPCC	12/13/2016	Aaron and Ben Weiss	provided overview of draft Bike Master Plan
City Council Public Works Committee	12/21/2016	Aaron and Ben Weiss	provided overview of draft Bike Master Plan
TTAC	1/5/2017	All	present draft bike master plan and draft LRTP
TPCC	1/17/2017	All	present draft LRTP and adopt bike master plan
Planning Board	1/17/2017	All	present draft LRTP
Community Forum	1/26/2017	All	present draft LRTP
Missoula Downtown Association Board	2/7/2017	Aaron and Ben	Present draft BFMP and draft LRTP
TTAC	2/9/2017	All	recommend adoption of LRTP
TPCC	2/21/2017	All	adopt LRTP

DRAFT Activate Missoula 2045 Comments

Online Comments

Name	Timestamp	General Comment	Specific project comment	Response
Kathleen Shepherd	1/4/2017 19:20:06	I think this is a great plan! This kind of forward attitude is why my family settled in Missoula. The only complaint I have is that so few city services are available to all the families up on South Hill. I would really like to see expansion in that area in the future.		**Noted.**
	1/4/2017 23:19:43		I am a homeowner in the Linda Vista area and am disappointed and disheartened that we the tax payers were not offered a discussion or furthermore an explanation of the bike lanes in this residential neighborhood. Did you do a study to determine the bike use in this area? It is minimal at best! To eliminate parking for the sake of a few is irrational and ludicrous! I am against this waste of money, NO BIKE LANES!!	**Noted.**
Julie Kies	1/19/2017 15:35:26	I am very impressed with the maps, data, tools and expertise going into this planning. I have only had a chance to review part of it, and will review more later. My family has been thinking of moving to a different part of town largely to avoid traffic, and utilize the safest bike route to/from home/work/recreational spaces. These maps provide great insight into where growth in development and traffic will occur.		**Noted.**

Email Comments

Name	Date	Comment	Response
Caleb Kasper (Riverfront Neighborhood Leadership Team)	1/11/2017	Dear Members of the Missoula Metropolitan Planning Organization, On behalf of the Riverfront Neighborhood Leadership Team, I Respectfully ask you to update the current Long Range Transportation Plan Update to reflect the following comments. Wewouldreally like to see more specificity added to project number 360–Bike Lanes on 5th St and 6th St between Higgins and Russell. In light of the recent Public Works Committee Discussion and vote to have Alta Planning+Design complete its work by doing a partial design based on Option 1C as laid out in the Transportation Function and Safety Memo, we feel the following would be appropriate: 1. Add detail to the project list to include design elements from Option 1C, 2. Create A new illustrative project to either convert, or study conversion of these streets to 2-way as a long-term goal	**Update project in LRTP to reflect the memo and Council adopted preferred option.**
MDT	2/2/2017	Page 4: Vicki is listed twice in the "Special Thanks" list. Should delete the second entry.	**Noted**
MDT	2/2/2017	Pages 5 – 8: In the references where the title is listed on one line but the page number is listed on the left side of the column in the next line, suggest moving the page number to the right side of the column so that it lines up with the page numbers in the other references. Typical comment for multiple references where this is the situation.	**Will adjust text size and formatting**
MDT	2/2/2017	Page 7: The Page listing for Figure 50 is confusing. It looks like "2045" and page number "93" are squeezed together into one number "204593". They should be separated.	**Noted, see above**
MDT	2/2/2017	Page 11: In the right side column of text, the text "the City and County of Missoula" probably should be split into two different listings "the City of Missoula, Missoula County, …".	**Noted**
MDT	2/2/2017	Page 11: Figure 1 is missing the right and bottom border. Is this a stylistic choice?	**Noted, graphic adjusted**
MDT	2/2/2017	Page 12: In the List of Goals, in the 5th bullet, what is "secure transportation"?	**"Secure Transportation" is directly from federal law.**
MDT	2/2/2017	Page 13: Consider adding the years to "Winter", "Spring", "Summer/Fall", and "Winter" so that all the headings are consistent with the "February 2017" heading which does list the year.	**Noted**
MDT	2/2/2017	Page 13: Consider changing "TPCC Adoption" to "Adoption by TPCC".	**Noted**
MDT	2/2/2017	Page 13, Figure 2: Please change "principals" in Technical Tasks, Spring bubble to "principles"	**Noted**
MDT	2/2/2017	Page 14: In the Multimodal Vision Plan section, the name of Chapter 2 listed here as "State of the System" does not match the name listed on the Chapter 2 cover page which says "Existing & Future Conditions".	**Noted**
MDT	2/2/2017	Chapter 2: In the footer of all odd numbered pages, the name of the chapter listed as "Existing Conditions" should be changed to "Existing & Future Conditions" so that it matches the chapter name on the Chapter 2 cover page.	**Noted**
MDT	2/2/2017	Page 16; 1st ¶-Consider removing "(if not over a century)" or revising sentence. As written, the phrase seems superfluous.	**Noted**
MDT	2/2/2017	Page 16; 1st ¶-Please remove hyphen between "Long" and "Range"	**Noted**
MDT	2/2/2017	Page 16; Section I; 1st ¶; last sentence-Consider removing "of course".	**Noted**
MDT	2/2/2017	Page 17, Streets and Highways, 2nd paragraph, 2nd sentence – To be eligible for federal funding the roadway must be functionally classified as a major collector or above and on-system.	**Will clarify in text**
MDT	2/2/2017	Page 18: Consider changing the color of the MPO Planning Area lines. The first two things that stick out when looking at the figure are the thick reddish-brown colored lines of the major roadways in the map and then next looking at the legend and seeing the same thick reddish-brown colored box outline that says "MPO Planning Area".	**Noted**

MDT	2/2/2017	Page 19: The paragraph that starts with "Overall …" contains statements that probably could use further clarification (maybe something about percentage of lane miles congested, or in 2015 as compared to 2010), because when looking at the map in Figure 5, there is a lot of red and orange which wouldn't seem "pretty good" and "very few areas" upon initial reaction. Figure 6 does show a substantial improvement as compared to Figure 5.	**Noted**
MDT	2/2/2017	Also, what is the cause of the congestion at the little dot on S 93?	**Will review travel model for clarification**
MDT	2/2/2017	Is the line in the upper right-hand corner of Figures 5 & 6 the MPO planning area boundary? Suggest removing since the rest of the boundary isn't part of the figure.	**Noted**
MDT	2/2/2017	Page 19-Table 2 is not referenced in the text. Suggest including a reference, where appropriate.	**Noted**
MDT	2/2/2017	Page 22: Regarding the sentence "Unfortunately, sufficient pavement condition data for City of Missoula roadways is currently not available.", which roadways is this statement referring to? MDT has been collecting and recording pavement condition data for the Interstate, National Highway routes, and Primary routes for quite some time. The City of Missoula has been doing the same for the Urban route designated roadways (and Missoula County has been collecting data on the Urban route designated roadways outside of the City limits). If the sentence is referring to the local streets in the City of Missoula, then the sentence should be modified accordingly. Otherwise, the statement is incorrect. Additionally, is this true for streets located in Missoula County?	**Noted. Will clarify in text**
MDT	2/2/2017	Page 24; Bicycle Section: Any proposed SUP within State Highway System R/W must meet the criteria of MDT's Shared use Paths in MDT Right-of-Way policy as well as the Highway State Special Revenue Account Management – Non Federal Match & Maintenance Impact to the Account Policy (HSSRA).	**Noted**
MDT	2/2/2017	Page 24: In the first paragraph of the Bicycle Section, the word "adolescence" in the first paragraph doesn't seem to make sense based on the language in the second sentence that says "decades of development" and "a robust network". The first sentence should probably be reworded to clarify the intent of the statement.	**Noted**
MDT	2/2/2017	Page 24; last sentence: This sentence isn't finished until page 27. Suggest completing the sentence on one page.	**Noted. Will adjust layout**
MDT	2/2/2017	Page 25: In the Buffered Bike Lanes section, the way that the second sentence is written implies that the only buffered bike lane in Missoula is the one on East Spruce Street. The pavement preservation project that MDT did on Arthur Ave from Beckwith Ave to 6th St should also have one now (verify with Kevin Slovarp if the final striping has been completed). There may be others too.	**Noted, will clarify**
MDT	2/2/2017	Page 29: In the second paragraph, at the end of the sentence, change "crashes an improve" to "crashes and improve".	**Noted**
MDT	2/2/2017	Page 29: In the fourth paragraph, in the last sentence, change "an increase the number" to "an increase in the number".	**Noted**
MDT	2/2/2017	Page 33: What are the Total Cost numbers referring to? Insurance damage claims paid?	**Will clarify this total**
MDT	2/2/2017	Page 33: What does the cross symbol in the Reserve & I-90 row signify?	**Will add reference for cross**
MDT	2/2/2017	Page 33; Table 4: There is no reference or discussion of this table in the text. Please revise accordingly.	**Noted**
MDT	2/2/2017	Page 35: In the list of organizations, the statement currently listed for the Missoula Parking Commission doesn't really indicate how this organization is involved in the transportation options listed in the section. The statement should be clarified.	**Noted**
MDT	2/2/2017	Page 37, Intermodal; 1st ¶-The description of what Figs 17 and 18 represent doesn't seem to match the actual captions on the Figures. For example, Figure 17 is a projected flow of truck travel and Figure 18 only shows the western portion of the state. Please clarify.	**Noted**

MDT	2/2/2017	Page 39; Environmental Issues: There are no references or discussion pertaining to Tables 5 & 6. Please revise accordingly.	**Noted**
MDT	2/2/2017	Page 43; Section II; 3rd ¶: Is the Missoula County Growth Policy based on a similar approach?	**Noted**
MDT	2/2/2017	Page 43; Section II; 6th ¶: Should "are" and "they" be flipped in the first sentence?	**Noted**
MDT	2/2/2017	Figures 24 & 25-It isn't clear the extent of the MPO planning area-based on the symbols in the legend.	**Noted**
MDT	2/2/2017	Page 44: In the Legend, should change "50 DUs (2045 – 2015)" to "50 DUs (2015 – 2045)".	**Fixed**
MDT	2/2/2017	Page 45: In the Legend, should change "100 New Total Employees ('45 – '15)" to "100 New Total Employees ('15 – '45)".	**Fixed**
MDT	2/2/2017	Page 46; Section III; Committed Projects: Consider re-ordering the figure numbers so Figure 28 is not referenced prior to Figures 26 and 27.	**Will work on layout options**
MDT	2/2/2017	It isn't clear what the reference is for committed and completed projects. 2012 LRTP update? Current TIP? Please clarify.	**Noted**
MDT	2/2/2017	Page 46: In Section IV, in the first paragraph, in the last sentence, add a space between "8" and "presents".	**Noted**
MDT	2/2/2017	Page 47: In the map, the text for the "Rattlesnake Dr" label is cut off.	**Noted**
MDT	2/2/2017	Page 48: In Table 8, in the 2015 column, why are the values listed here not the same as the values listed in the 2015 column of Table 2 on Page 19?	**Noted, will check on numbers for consistency**
MDT	2/2/2017	Page 48: In Table 8, the VMT for 2015 listed here as 1,697,201 doesn't match the 3,727,982 VMT listed in Table 15 of Appendix F. Are the areas different? Verify.	**Will check for consistency**
MDT	2/2/2017	Page 48: In Section V, in the third sentence, the "$508.6 million" listed here needs to be updated based on the comments listed for Appendix B. Also, this $ amount doesn't match the $ amount shown in Table 9.	**Noted**
MDT	2/2/2017	Page 48: In Table 9, Change the Table heading from "Cost estimates for anticipated transportation need in 2045" to "Cost estimates for anticipated discretionary-funded transportation need through 2045".	**Noted**
MDT	2/2/2017	Also, please revise "(current year $)" to "(2016 $)" in order to avoid future confusion.	**Noted**
MDT	2/2/2017	Page 48: In Section VI, in the fourth sentence, change "will available" to "will be available".	**Noted**
MDT	2/2/2017	Also, please revise "(current year $)" to "(2016 $)" in order to avoid future confusion.	**Noted**
MDT	2/2/2017	Page 48: In Section VI, in the last sentence, change "with greatest" to "with the greatest".	**Noted**
MDT	2/2/2017	Pages 49 and 84: On the left side of the graphic, change "2016 Funding" to "2016 – 2045 Funding".	**Noted**
MDT	2/2/2017	Pages 49 and 84: On the left side of the graphic for the 2016 – 2045 Funding, the sum of the Discretionary and Non-discretionary funding listed here is $691,819,455. It appears that this number was calculated using the allocations. It instead should be calculated based on the available funding which is the sum of the Federal Revenue in Table 13 and the Local Revenue in Table 14.	**Noted**
MDT	2/2/2017	Page 52: In the first paragraph, in the third sentence, change "and mobility report card" to "and the mobility report card".	**Noted**
MDT	2/2/2017	Page 52 and Appendix A: Text indicates that detailed accounts of PI input, etc. is included in Appendix A. This information is not included in Appendix A.	**Will update to reflect contents of Appendix A**
MDT	2/2/2017	Page 53: There is no reference to Table 30 in the text. Please revise accordingly.	**Noted**
MDT	2/2/2017	Page 56: In Figure 34, why are the percentages in the "Very Good" section circled?	**Legacy from BBER report, will remove circles**
MDT	2/2/2017	Page 56: In Figure 35, why are the top portions of the bar depictions in the "Good" and "Fair" sections circled?	**Will remove circles**
MDT	2/2/2017	Page 60: At the top of the right-hand column of text, delete the second duplication of the text "the survey".	**Noted**
MDT	2/2/2017	Page 61: In the first paragraph, change "in City Council Chambers" to "in the City Council Chambers".	**Noted**

MDT	2/2/2017	Page 65: In Table 11, what does “increase the security of the transportation system” mean? Keep it from being vandalized? Keep it from being destroyed by terrorists? Prevent signs from being stolen? It is unclear what this is as a goal and needs a little more clarification.	**Transportation security is directly from federal goals and planning factors, included in this plan for consistency and to ensure compliance with federal requirements**
MDT	2/2/2017	Page 66; System Performance Goals..: Why is “factors” in quotes?	**Noted, remove quotes**
MDT	2/2/2017	Page 66: In the National Goals and Planning Factors section, in the second sentence, change “FAST ACT” to “FAST Act”. Also, why is “factors” in quotes?	**Noted, will revise**
MDT	2/2/2017	Page 66: In the Activate Missoula 2045 Goals and Objectives section, in the last sentence, change “CAC, TAC, and TTAC and TPCC” to “CAC, TAC, TTAC and TPCC”.	**Noted**
MDT	2/2/2017	Page 67: Label the page number for this page.	**Graphic size prevents page number label**
MDT	2/2/2017	Page 67: In Goal 3, in the third bullet, change “costs that produces” to “costs that produce”.	**Noted**
MDT	2/2/2017	Page 67; Goal 4-Does the County’s growth policy also emphasize “focus inward”?	**Will review this goal for consistency with County Growth Policy**
MDT	2/2/2017	Page 70: In the description of B.3, the word “corridors” is misspelled.	**Noted**
MDT	2/2/2017	Page 71: For C.1, in the description for earning 10 points, the word “project” is misspelled.	**Noted**
MDT	2/2/2017	Page 72: For E.1, in the description for earning 5 points, the word “frequency” is misspelled.	**Noted**
MDT	2/2/2017	Page 72: For E.3, the descriptions for earning 3 points and for earning 7.5 points are exactly the same.	**Noted**
MDT	2/2/2017	Page 72: For E.4, the descriptions for earning 3 points and for earning 7.5 points are exactly the same.	**Noted**
MDT	2/2/2017	Page 73: Label the page number for this page.	**Graphic size prevents page number label**
MDT	2/2/2017	Page 73: For F.2, trim the horizontal bar back to the 5 point mark.	**Noted**
MDT	2/2/2017	Page 74: Label the page number for this page.	**Graphic size prevents page number label**
MDT	2/2/2017	Page 74: Change “F.2 Streetscape” to “Bonus.2 Streetscape”.	**Noted**
MDT	2/2/2017	Page 75: In the second sentence, change “despite being scoring highly” to “despite being scored highly”.	**Noted**
MDT	2/2/2017	Page 75: In the title of Figure 41, add “Non-motorized” at the beginning before “Project ranking”.	**Noted**
MDT	2/2/2017	Page 75, Page 103, and Appendix C: In Figure 41, for Project ID #198, the word “Trail” is misspelled.	**Noted**
MDT	2/2/2017	Page 75 and Appendix C: In Figure 41, Project ID #515 listed here doesn’t match the ID #534 listed in Table 24 and Appendix B for the same project (Bike/Ped Bridge from Riverfront Triangle to McCormick Park). Verify which is correct and modify accordingly.	**Will review project # assignments**
MDT	2/2/2017	Page 75 and Appendix C: In Figure 41, Project ID #516 listed here doesn’t match the ID #535 listed in Appendix B for the same project (Shared-use path connection through the fairgrounds). Verify which is correct and modify accordingly.	**Will review project # assignments**
MDT	2/2/2017	Page 79: In the first paragraph, change “as means of” to “as a means of”.	**Noted**

MDT	2/2/2017	Page 80: In the second paragraph, though the reason currently described could very well be one factor, it's probably not the only reason. The text should probably also recognize and discuss that it seems that another very significant factor for people who live in the higher single-occupancy vehicle use areas per the map is that these areas appear to be where people have further to travel to get to their destinations, thus making walking, biking, and to a lesser extent transit much more inconvenient due to the substantial additional time required to commute using these modes as opposed to using a single-occupancy vehicle, regardless of whether there are good bike/ped facilities in place or not. Once the trip length gets more than a mile or two, the additional time it takes to bike or walk versus driving is not worth it to some as their time is much more valuable. Then there are numerous other reasons why biking and walking can be inconvenient – fitness level, needing to shuttle family members, needing to carry large or heavy items, bad weather conditions, darkness, etc.	**Noted. Will review this paragraph and consider additional qualification**
MDT	2/2/2017	Page 80: In the Comparison Cities section, in the first sentence, add a comma after "and if so".	**Noted**
MDT	2/2/2017	Page 84: In the last paragraph, in the last sentence, change "for Mountain Line's to operate" to "for Mountain Line to operate".	**Noted**
MDT	2/2/2017	Page 85: In Section II, in the second paragraph, in the first sentence, change "projects will eligible funding" to "projects with eligible funding".	**Noted**
MDT	2/2/2017	Page 85: In Section II, in the third paragraph, in the second sentence, the word "discretionary" is misspelled.	**Noted**
MDT	2/2/2017	Page 86: In the second paragraph, in the second sentence, change "discussed in earlier" to "discussed earlier".	**Noted**
MDT	2/2/2017	Page 89: In the second paragraph, in the first sentence, change "each scenarios" to "each scenario".	**Noted**
MDT	2/2/2017	Page 89: In the title of Table 12, the word "measures" is misspelled.	**Noted**
MDT	2/2/2017	Page 89: In Table 12, in the third row beneath the column headings, in the first column, the word "Change" is misspelled.	**Noted**
MDT	2/2/2017	Page 93: Figures 49 and 50 are not referenced in the text. Please revise accordingly.	**Noted**
MDT	2/2/2017	Page 94: In the Federal funding section, in the second paragraph, the word "primary" is misspelled.	**Noted**
MDT	2/2/2017	Page 94: In the title of Table 13, the word "estimated" is misspelled.	**Noted**
MDT	2/2/2017	Page 94: In Table 13, all of the zeros in the 2021-2030 and 2031-2045 columns (except for the zeros in the Earmarks row) need to be changed to the appropriate projected estimates based on historical averages for each of those funding sources. Update the totals and all text within the report referencing these values.	**Will add estimates for future years to this table, with the understanding that due to the lack of certainty and that these funding sources are programmed by MDT, and so are not included in other funding analysis in the plan**
MDT	2/2/2017	Page 94: In Table 13, many of the values as currently listed don't match the values listed in Appendix D. Revise so that Table 13 and Appendix D match.	**Noted, will review for consistency**
MDT	2/2/2017	Page 95: In Table 14, in the TRANSADE and MUTD rows, in the 2016-2020, 2021-2030, and 2031-2045 columns, increase the font size to match the rest of the text size in the table.	**Noted**
MDT	2/2/2017	Page 95: In Table 14, in the footnotes below the table, increase the size of the % and # symbols to be the same size as the symbols used in the table.	**Noted**
MDT	2/2/2017	Page 96: In Table 15 (both the Federal section and the St/Local section of the table), all of the blanks in the 2021-2030 and 2031-2045 columns (except for the blanks in the Earmarks row) need to be changed to the appropriate projected estimates based on historical averages for each of those funding sources. Update the totals and all text within the report referencing these values.	**Noted, see response above for Table 13**

MDT	2/2/2017	Page 97: In Table 16 (both the Federal section and the St/Local section of the table), the blanks in the 2021-2030 and 2031-2045 columns for the TA funding source need to be changed to the appropriate projected estimates based on historical averages for that funding source. Update the totals and all text within the report referencing these values.	**Noted, see response above for Table 13**
MDT	2/2/2017	Page 97: In Table 17 (both the Federal section and the St/Local section of the table), in the 2016-2020, 2021-2030, and 2031-2045 columns, the column totals don't add up using the values listed above. It appears that the values in the 5311 row are missing and need to be added.	**Noted**
MDT	2/2/2017	Page 98: In Table 19 (both the Federal section and the St/Local section of the table), the blanks in the 2021-2030 and 2031-2045 columns need to be changed to the appropriate projected estimates based on historical averages for this funding source. Update the totals and all text within the report referencing these values.	**Noted**
MDT	2/2/2017	Page 99: In Table 20 (both the Federal section and the St/Local section of the table), all of the blanks in the 2021-2030 and 2031-2045 columns need to be changed to the appropriate projected estimates based on historical averages for each of those funding sources. Update the totals and all text within the report referencing these values.	**Noted**
MDT	2/2/2017	Page 100: Label the page number for this page.	**Noted**
MDT	2/2/2017	Page 100: In Table 21 (the Federal section of the table), in the 2021-2030 and 2031-2045 columns for the 5310 row, fix the number formatting of the values to match the rest of the values in the table.	**Noted**
MDT	2/2/2017	Page 102: Label the page number for this page.	**Noted**
MDT	2/2/2017	Page 102: In Table 23, in the Committed Project #37 (Bitterroot River – W of Missoula) row, in the Cost ($) Future Year column, the $825,000 currently listed should be changed to $13,959,653 based on the values listed to the right.	**Revise $ amount**
MDT	2/2/2017	Page 102: In Table 23, add rows, one for each funding source, for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using IM, NH, STPX/STPS/SFCN, UPP, and BR funding (see previous comments).	**Noted**
MDT	2/2/2017	Page 102: In Table 23, in the Recommended Projects list, Project #336 (Johnson Street: Extend from South Avenue to Brooks Street) is not listed in the rankings list in Appendix C. Also it has the same Project ID number (336) as the Mary Street project listed in the Committed Projects section. Verify what is correct and modify accordingly.	**Noted**
MDT	2/2/2017	Page 103: Label the page number for this page.	**Noted**
MDT	2/2/2017	Page 103: In Table 24, in the Committed Project #100 (Bitterroot Trail) row, fix the justification of "100" in the ID column.	**Noted**
MDT	2/2/2017	Page 103: In Table 24, add a row for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using TA funding (see previous comments).	**Noted**
MDT	2/2/2017	Page 104 and 105: Figures 51 and 52 are not referenced or discussed in the text. Please revise accordingly.	**Noted**
MDT	2/2/2017	Page 106: Label the page number for this page.	**Noted**
MDT	2/2/2017	Page 106; Table 25-Please remove TDM references from table.	**Noted**
MDT	2/2/2017	Page 106: In Table 25, in the two Vanpool rows, in the Total Cost ($) Current Year column, the appropriate value for each row is missing and needs to be added.	**Noted**
MDT	2/2/2017	Page 106: In Table 25, in the Committed Project – Vanpool Capital purchases row, in the Cost ($) Future Year column, the appropriate value (the sum of the values to the right) is missing and needs to be added.	**Noted**
MDT	2/2/2017	Page 106: In Table 25, in the Committed Project #386 (TDM Placeholder MRTMA) row, the value of $3,896,200 listed in the Total Cost ($) Current Year column shouldn't be larger than the $3,036,000 listed in the Cost ($) Future Year column. According the amounts listed to the right, the $3,036,000 in the Cost ($) Future Year column is the correct value and the value in the Total Cost ($) Current Year column needs to be revised.	**Noted**

MDT	2/2/2017	Page 106: In Table 27, add a row for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using HSIP funding (see previous comments).	**Noted**
MDT	2/2/2017	Page 106: In Table 28, add a row for the To Be Determined Committed Projects in the 2021-2030 and 2031-2045 columns using MACI funding (see previous comments). Additionally, ID #59-should there be another agency before the slash?	**Noted**
MDT	2/2/2017	Page 106: In Table 29, in all rows, in the Total Cost ($) Current Year column, the appropriate value for each row is missing and needs to be added.	**Noted**
MDT	2/2/2017	Page 106: In Table 29, in the Committed Project – Capital purchases (5339 funding source) row, in the Cost ($) Future Year column, the appropriate value (the sum of the values to the right) is missing and needs to be added.	**Noted**
MDT	2/2/2017	Page 106: In Table 29, in the Committed Project – Paratransit capital purchases row, in the Cost ($) Future Year column, the appropriate value (the sum of the values to the right) is missing and needs to be added.	**Noted**
MDT	2/2/2017	Page 106: In Table 29, increase the row height for the Recommended Project so that the text does not get cut off.	**Noted**
MDT	2/2/2017	Page 108: In the Funding summary section, in the second sentence, the "$595 million" value listed doesn't match the $692 million (or the $698 million) as discussed in a previous comment.	**Will review for consistency**
MDT	2/2/2017	Page 109, Table 30; Goal 4-Does the County's growth policy also emphasize "focus inward"? This doesn't seem inclusive of entire planning area.	**Noted**
MDT	2/2/2017	Page 110: In Table 30, for Goal 7a, in the Recommended Plan Consistency column, change "which results reduced" to "which results in reduced".	**Noted**
MDT	2/2/2017	Page 113; Performance Monitoring and Measurement; 2nd bullet; 2nd sentence-what about Missoula County?	**Noted**
MDT	2/2/2017	Pages 114 and 115-There are no references in the text for Figures 55 and 56. Please revise accordingly.	**Noted**
MDT	2/2/2017	Page 115: Isn't the 5th bullet essentially the same as the 3rd bullet?	**Noted**
MDT	2/2/2017	Page 115: The 8th bullet about pursuing a consideration to de-emphasize vehicular Level of Service seems to run counter to the LRTP Goal #2 of improving efficiency and performance (which was ranked the highest of the 8 goals according to Figure 39). It also seems to be in contradiction to the #1 ranked response by the public listed in Figure 31 regarding the desire to reduce traffic congestion, and in contradiction to Figure 36 which shows the largest number of the respondents saying that adding and improving roadways for vehicles is a very high priority. This action item seems to be coming out of left field because it doesn't appear to relate to any of the other discussion in this document. This action item either needs a lot more discussion as to why it is pertinent to this document or it should be removed.	**Will revise to recommend Multi-modal level of service, which is consistent with plan goals by increase the efficiency and access for all modes. Increased efficiency can reduce congestion in a more cost-effective way, further supporting plan goals. Multi-modal level of service is also a better measure when considering mode split goals in this plan**
MDT	2/2/2017	Page 116; Section II; 2nd ¶; 1st sentence-Suggest deleting the second use of "also".	**Noted**
MDT	2/2/2017	Appendix A-based on text included on page 52, this appendix is incomplete. Additionally, this isn't presented in what was done, but more like a scope of work and what will be done.	**Noted**
MDT	2/2/2017	Appendix A; Page 2; Requirements-Please revise 23 CFR 450.322 to .324.	**Noted**
MDT	2/2/2017	Appendix A; last page-Please change TTAC date.	**Noted**
MDT	2/2/2017	Appendix B: Revise all tables based on all comments noted previously for Tables 23 – 29 in the main document.	**Noted**
MDT	2/2/2017	Appendix B: At the bottom of each table (except the Safety Projects table which is already shown correctly), for the Federal row and the State/Local row, move the total amount from the Total Cost ($) Current Year column to the Cost ($) Future Year column. The sum of these two amounts will equal the Total Cost ($) Future Year amount listed directly above for the Committed and Recommended projects.	**Noted**

MDT	2/2/2017	Appendix B, Roadway Improvement Projects: Increase the row height for Project ID #13 in the Illustrative Projects section so that it matches the text shown for this project in Appendix C.	**Noted**
MDT	2/2/2017	Appendix B, Non-motorized Projects: Increase the row height for Project ID #525 in the Illustrative Projects section so that it matches the text shown for this project in Appendix C.	**Noted**
MDT	2/2/2017	Appendix B, Transportation Options-Please remove reference to TDM	**Noted**
MDT	2/2/2017	Appendix B, Transit – Capital Projects: The Total amount for the Total Cost ($) Current Year is missing and needs to be added.	**Noted**
MDT	2/2/2017	Appendix C, Roadway Project Ranking: The vertical grid lines do not appear to correspond with the locations of the point headings at the top of the list and do not appear to correspond to the point totals for each project listed in Table 23 or Appendix B.	**Noted**
MDT	2/2/2017	Appendix C: Project ID #517 listed here doesn't match the ID #536 listed in Appendix B for the same project (Post Siding Road shared-use path connection). Verify which is correct and modify accordingly.	**Noted**
MDT	2/2/2017	Appendix C: For Project #96 (Grant Creek Trail to Snowbowl Rd), the score listed here doesn't appear to match the score listed in Appendix B for this same project. Verify which is correct and modify accordingly.	**Noted**
MDT	2/2/2017	Appendix D: Add in yearly historical average projections for years 2021 – 2045 for the IM, NH, MACI, STPS/STPX/SFCN, HSIP, TA, UPP, and Bridge funding categories.	**Noted**
MDT	2/2/2017	Appendix D: Can delete the STPP row seeing as there are no longer any Primary routes in the MPO area that can use this funding category.	**Noted**
MDT	2/2/2017	Appendix D: Change "SFPX" to "STPX".	**Noted**
MDT	2/2/2017	Appendix D: The Total amount of FTA 5311 Capital funding on the right side of the sheet is missing and needs to be added.	**Noted**
MDT	2/2/2017	Appendix D: Update the info highlighted in yellow and delete the highlighting.	**Noted**
MDT	2/2/2017	Appendix E: The information for this Appendix is missing.	**Noted. Air quality appendix will be added when complete**
MDT	2/2/2017	Appendix F: The information appears to be incomplete. It only lists data for the existing time period. There is no information regarding the 2045 projected volumes, etc.	**Noted**
Vince Caristo	2/3/2017	Pg 23 – "The Missoula Urban Transportation District (MUTD) provides the region with fixed route transit, paratransit, and senior van services."	**Noted**
Vince Caristo	2/3/2017	Pg 35 – "Mountain Line – provides fixed route transit, paratransit, and senior van ~~etc. transit~~ services."	**Noted**
Vince Caristo	2/3/2017	Pg 100 – In Table 21, format the numbers as currency in row 5310 ($1,034,895; $1,671,705).	**Noted**
Vince Caristo (MUTD)	2/3/2017	Pg 100 – "While the transit operations costs listed in Table 22 represents represent all anticipated transit operations funding, the specific expenses are determined annually by the FTA and MUTD (compensation, fuel, parts, repairs, etc.). The MPO does not typically determine how these dollars are spent by the transit agency program specific projects in this category."	**Noted**
Vince Caristo (MUTD)	2/3/2017	Pg 106 – Table 29: Remove 'Capital' from the title, because operations costs are included here.	**Noted**
Vince Caristo (MUTD)	2/3/2017	Also, can you change the CMAQ allocations which aren't actually 'Committed' – i.e., those beyond the current TIP – to 'Recommended', rather than 'Committed'? The FTA non-discretionary sources are 'Committed' to us, but not the discretionary sources, unless they are in an active project or approved in the TIP. This is exactly the problem we ran into with the 2012 plan…	**Noted - will review definitions and adjust accordingly**
Vince Caristo (MUTD)	2/3/2017	Pg 108 – Figure 53 – I think you mixed up Transit Operations and Transit Capital?	**Fixed chart**

Vince Caristo (MUTD)	2/3/2017	Pg 89 – What is the forecasted mode share, in relation to the established goal, that will be achieved with the chosen mix of projects? I think it would be valuable for people to know. Table 12 shows that you have access to those calculations, so for an interested/astute reader it seems unusual for the plan to not make that direct connection.	**Will consider ways to expand on mode split discussion with travel model results**
Vince Caristo (MUTD)	2/3/2017	Pg 94 – Table 13 – What does 'federal allocation only' mean….are you including local match dollars for STPU? I think this would be a good place to exactly which sources are discretionary vs non-discretionary sources, since this is key concept in the plan, and I don't think it's broken down anywhere else (although it's well explained on p 84).	**Will review and clarify**
Vince Caristo (MUTD)	2/3/2017	Pg 97 – "In lieu of dedicated federal dollars, and considering that STPU funds are committed to Russell Street through 2030 or beyond, more funding from local sources will be necessary to meet the goals of this plan." This is speaking about non-motorized, but isn't this sentence a key sentence that applies to the entire plan? If it's true, it seems important to highlight this more.	**Noted, will consider ways to highlight this point**
Vince Caristo (MUTD)	2/3/2017	Pg 106 – This mirrors my comment above regarding Table 29 – programs are listed as 'Committed' that I don't think technically are (maybe I'm wrong), in Table 25 and Table 28. Given what happened with MUTD's 'Committed' funds in the 2012 plan, I think it's especially important to be precise with the definitions in this plan.	**Noted**
Vince Caristo (MUTD)	2/3/2017	Pg 108 – "As can be seen, because the amount of non-discretionary and committed funding ($595 million) is so large in comparison to the amount of funds that are discretionary ($97 million), even relatively large shifts of discretionary funds to different categories only have a small effect on the overall distribution of funds." This sentence is referring to Figure 46, not the figures immediately below it…it might be worth citing it, or reproducing it here. This is another really key finding of the plan - I think it would be worth breaking this down further for people, to show the amount of committed vs discretionary over time (2016-2020, 2021-2030, etc.).	**Noted, will work on further explaining discretionary vs. non-discretionary challenges**
Dave Strohmaier (County Commissioner)	2/6/2017	As I mentioned when we met, I'd very much like to see some language in Activate Missoula 2045 that acknowledges the potential of using the Bitterroot Spur as a future rail transit option (either within Missoula or as a commuter rail line to the Bitterroot). What is the process to make this change and might you be able to prepare amendment language for TPCC's consideration? Places in the plan that seem appropriate insertion points include p. 37; Table 25 (unless this table reflects funded projects); Appendix A, Transit-Capital Projects table; and, possibly, one of the Federal Transit Administration tables in the TIP. Maybe there are other more appropriate spots for an unfunded project, as what I'm suggesting, but I think it is important to get this into the plan. Besides getting this into the LRTP, other important next steps would include: (1) preserving the ROW, perhaps getting mention of rail transit in MUTD's Long Range Transit Plan, and developing a feasibility study. Let me know if you have any questions. Thanks!	**Add section on passenger rail in Chpt 2 (Existing/Future Conditions) and add Illustrative Project under transit (note: will be unfunded, and have no cost estimate due to uncertainty of future project details and anticipated costs)**
City Parks	2/7/2017	Pg. 14 - City and County park plan names and updates	**Will adjust references**
City Parks	2/7/2017	Pg. 28 - Fig 10 - add Hillview Way system	**Noted**
City Parks	2/7/2017	Pg. 40 - Fig 20 - proposed parks may not be accurate	**Will review data for consistency with planned parks**
City Parks	2/7/2017	Pg. 85 - Fig 47 - Please add trail/pathway and sidewalk maintenance under operational; under capital, I presume non-motor/active = trail/sidewalk	**Will add sidewalk/trails maintenance to graphic**
City Parks	2/7/2017	Pg. 99 - Please add trail maintenance - Parks can provide a list of projectcs. (Note - TA grant application prep for lighting, pavement preservation. Also, need to replace NS Ped x-ing decking @ $750k)	**Noted. Once projects and cost estimates are received, table can be updated.**
City Parks	2/7/2017	Pg. 115 - Right column, 3rd bullet: …a bicycle facility (and maintenance) funding program…	**Noted. Make change in text.**
City Parks	2/7/2017	Pg. 116 - Right column, 3rd bullet add "Missoula trails, including maintenance, plan.	**Noted. Make change in text.**

City Parks	2/7/2017	(??) edits from Parks & Rec in LRTP is inclusion of the mid/long term cyclical maintenance of commute pathways, including ped bridges and crossings	**Noted. Include additional discussion of non-motorized facility maintenance over next 30 years.**
Gillian Thornton	2/7/2017	On the bottom of page 35, under "Transportation Options", the document references the Missoula Ravalli Transportation Management Association. I think that it should be followed by its abbreviation in parenthesis, particularly since it is referred to by its abbreviation MRTMA in the image caption below.	**Noted.**
Gillian Thornton	2/7/2017	I found Figure 21 on page 41 to be somewhat unclear. Because the boundaries between neighborhood units (or whatever the unit being used) are not depicted, I found the image difficult to intemperate. Perhaps more of a description (either in the caption or in the text on page 39) would help clarify? Or perhaps simply including the boundary lines in the image?	**Noted. Add census tract/block group boundaries and additional clarifying text on graphic or as footnote**
Gillian Thornton	2/7/2017	Figure 23 on page 42--I believe that all charts and tables should be able to stand alone outside of the document if needed. This means having very clear labeling. I suggest labeling your y-axis in this image so that it is clear that the numbers refer to percentages.	**Noted. Review tables and graphs for clarity, labels, and other identifying information**
Linda McCarthy (MDA)	2/10/2017	Comments on LRTP, **see attached letter*	**Noted.**
Amy Cilimburg	2/10/2017	I think it would be appropriate to include both the City of Missoula Conservation and Climate Action Plan (2013) and Missoula's Community Climate Smart Action Plan (2015). Both are linked here: http://www.ci.missoula.mt.us/956/Energy-and-Climate-Action. I was thinking they should be included in the box on page 14. Reducing emissions from transportation, and using transportation together with smart growth/land use planning in order to build a more resilient community with a smaller footprint are important to both these plans, and help support some of the ambitious goals within the LRTP	**Noted. Cross-reference added to list of plans, and climate change reference added in text.**
Amy Cilimburg	2/10/2017	I also wonder why climate change is not mentioned at all. I think it should be in this list: Activate Missoula 2045 also seeks to support and play a role in the implementation of Missoula's policies related to growth and development, environmental protection, economic development, neighborhood preservation, climate change, and community health. Climate change is broader than environmental protection, in my mind - it's more encompassing, addresses social equity and health in unique and different ways, etc. It seems small but I think important to include	**Noted. Change made.**
Kristin Kenyon (FTA)	2/13/2017	Figure 7 (transit routes), is a bit difficult to read. Perhaps the image could be improved or perhaps enlarged to an 11x17 sheet?	**Noted.**
Kristin Kenyon (FTA)	2/13/2017	If transit ridership has doubled recently, wouldn't that be shown as an increase in the yellow line (Mode of travel) in Figure 23?	**Figure 23 is ACS commute data, so may not reflect riders who use the bus multiple times, or for different purposes than commute to work.**
Kristin Kenyon (FTA)	2/13/2017	Suggest adding a column showing Population to Table 7 (in addition to households)	**Noted. Population added to table.**
Kristin Kenyon (FTA)	2/13/2017	In the forecast congestion section, it appears Reserve corridor will continue to be increasing congested. From the various maps showing development and transit-dependents, it appears this will continue to be a major corridor to consider for improved transit service	**Noted. We agree that this will be an area for Mountainline to focus on during their long range planning and route planning processes.**

Kristin Kenyon (FTA)	2/13/2017	Trying to reconcile the numbers in Figures 31 and 33 – not clear on how they differ…perhaps clarifying the titles…?	**Noted. The questions tried to get at the same issue, but in different ways. One (q. 31) is more policy-focused (which mode) versus the kinds of improvements (q. 33)**
Kristin Kenyon (FTA)	2/13/2017	Good section on Performance Based planning but it doesn't appear that transit measures are included. They are required to be in place starting next year related to transit performance measures and asset management. Please add a statement about the new FTA requirements so we know they are on the MPOs radar. (Let me know if you need more information ☺)	**Noted.**
Kristin Kenyon (FTA)	2/13/2017	CMAQ funds appear to go primarily for roadway projects – any consideration for future transit projects, especially since transit formula funds are not likely to increase in the future?	**Noted.**
Tom Zavitz	2/13/2017	DS Long Range Planning comments **See attached letter*	**Noted. Will consider additional language to draw attention to the land use/transportation linkages.**
Vince Caristo	2/14/2017	Pg 68, Footnote 1: *'Projects in the following categories were not scored using the project scoring methodology: Safety, Intelligent Transportation Systems, Transportation Options, Transit , and Studies.'*	**Noted, change made.**

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February 9, 2017

Aaron Wilson & Ben Weiss
City of Missoula Development Services
435 Ryman
Missoula, MT 59802

Aaron and Ben,

On behalf of the Missoula Downtown Association Board of Directors and staff, I want to thank you for taking the time to present the overview on the City of Missoula's Long-Range Transportation Plan and Bicycle Master Plan. We appreciate the quality of our planning staff and processes in Missoula, and your contributions are held in high regard.

In review of the LRTP, we appreciate the goals to shift mode and encourage biking, walking and busing. We support encouraging multi-modal options to improve community health, active lifestyle, and reduction of demand for parking spaces. We support the community's goal to reduce single-occupancy vehicle travel in exchange for other modes of transportation.

Unlike many others who have participated in this process, we believe economic vitality is directly linked to transportation infrastructure and services, and we prioritize economic vitality higher than most individuals in Missoula might. Generally speaking, we support Scenario 4 for both motorized and non-motorized transportation projects.

As a primary advocate for Downtown Missoula, we support and will advocate for these non-motorized projects noted in the LRTP:

- Bitterroot Branch Trail Connections and Riverfront Corridor trail improvements
- Citywide Bicycle Greenways and Complete Streets
- Additional river crossings for pedestrians and cyclists
- Bicycle and trail wayfinding
- Downtown streetscapes

With the goal of ensuring Downtown remains comfortably accessible for vehicles, we are strong supporters of converting Front & Main to two-way streets. However, we are cautious about converting Higgins Avenue to a third-lane roadway between Broadway and Brooks. Therefore, we will plan to be a primary participant in the planning around conversion of Higgins Avenue.

Noting that "Reconfiguring Broadway within the existing ROW from Orange to Madison as per the Downtown Master Plan" ranked among the top five roadway projects, we want to emphasize that the DTMP recommends, "Once conditions require and funding is available, **design Broadway as a four-lane street** between Russell and Van Buren streets with context-sensitive best practices and public involvement to ensure the pedestrian, bike, auto and business constituents are included in the planning, design and construction of the improvements."

Clay Street reconfiguration, Carousel Drive reconfiguration, and ADA parking enhancements are projects we will support.

In closing, we appreciate the time, talent and energy that went into to this planning process, and we appreciate the opportunities to participate in and consider the future of our community.

Thank You,

Linda

Linda K. McCarthy
Executive Director

February 13, 2017

RE: LRTP Public Comment

City of Missoula Transportation Planning Division:

Thank you for the opportunity to comment on the LRTP. As you know, the Planning Division of Development Services recently completed the Our Missoula 2035 City Growth Policy. It was created through active community involvement which included consideration of the intrinsic relationship between transportation and land use planning in setting goals for healthy connected "focus inward" community development.

The growth policy is based on the strategy of using efficient land use planning to create a more compact community and avoid urban encroachment into valuable agricultural and open lands around the city as well as limiting costly extensions of new infrastructure. So we are glad to see the concept of the relationship between transportation and community health and development discussed in the LRTP introduction.

Consistent with the LRTP revision process and our growth policy outreach and research, we have also seen the public need for more transportation options grow. National and local trends show that both older and younger citizens are looking for smaller affordable dwellings close to services, work, and transportation options. Compact development requires more integrated planning and will involve the comparison of transportation plans to other plans and, to some extent, coordinated framing of local and regional land use development strategies, policies, and plans with pertinent transportation studies and plans. Therefore interaction between transportation and other agencies involved with developing and implementing community planning should be a top priority.

Thanks again for the chance to comment.

Sincerely,

City of Missoula Development Services Planning Division

Appendix B: Full Project List

Roadway Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Committed Projects	7	N/A	Russell Street and Bridge Reconstruction (Broadway to Dakota)	MDT/City	STPU, BR, EARMARK	$36,750,900	$36,750,900	$4,931,973	$31,818,975				
	11	N/A	2nd half of Russell Street (Dakota to Mount Avenue)	MDT/City	STPU	$19,640,309	$19,640,309	$208,200	$1,343,000	$2,427,558	$15,661,551		
	30	N/A	Street Improvements: Wyoming (California to Russell)	City	Local	$200,000	$200,000	$200,000					
	37	N/A	Bitteroot River - W of Missoula (South Ave Bridge - MacClay Bridge)	County	BR	$10,900,000	$9,657,980	$110,700	$714,300	$1,185,386	$7,647,594	$577,285	$3,724,388
	39	N/A	US 93: North of Desmet Interchange - North	MDT	NH	$8,414,800	$8,414,800	$1,129,300	$7,285,500				
	40	N/A	I-90: Missoula - East and West (Van Buran St, $5,821,000 interchange)	MDT	IM	$8,918,200	$10,838,400	$949,400	$9,889,000				
	40.5	N/A	I-90: Missoula - East and West (Orange Street, $1,969,000 interchange)	MDT	IM	$3,925,800	$3,932,700	$344,500	$3,588,200				
	49	N/A	Street Improvements: California (River Road to Dakota)	City	Local	$400,000	$400,000	$400,000					
	54	N/A	Van Buren Street Reconstruction (Elm to Missoula Ave)	City	Local	$345,000	$345,000	$345,000					
	122	N/A	Grant Creek Road right lane addition at I-90	MDT/City	IM, Local funds	$604,200	$604,200	$235,400	$368,800				
	131	N/A	Huson - East	MDT	STPS	$3,271,300	$3,271,300	$439,000	$2,832,300				
	347	N/A	Higgins Avenue Bridge Improvements - UPN 8807	City/MDT	BR	$11,219,200	$11,219,200	$1,505,600	$9,713,600				
	485	N/A	Intersection improvements - MT 200 and Old Hwy 10	MDT	NH	$1,153,600	$1,153,600	$154,800	$998,800				
	511	N/A	Madison Street Bridge Improvements - UPN 8806	MDT	BR	$8,931,900	$8,932,000	$1,198,700	$7,733,300				
	538	N/A	Mary Street - extend from Reserve over railroad to new Southgate Mall connector.	City	MRA	$2,500,000	$2,500,000	$2,500,000					
	537	N/A	I-90 Bridge replacement - Bonner	MDT	IM	$20,027,800	$22,741,200	$1,992,100	$20,749,100				
		N/A	Placeholder for future IM projects	MDT	IM	$24,084,053	$24,084,053			$796,252	$8,293,383	$1,313,511	$13,680,907
		N/A	Placeholder for future NH projects	MDT	NH	$9,954,825	$9,954,825			$329,120	$3,427,960	$542,922	$5,654,822
		N/A	Placeholder for future STPX/STPS/SFCN projects	MDT	STPX/STPS/SFCN	$37,914,836	$37,914,836			$1,920,342	$12,389,210	$3,167,829	$20,437,454
		N/A	Placeholder for future BR projects	MDT	BR	$10,269,362	$10,269,362					$1,378,148	$8,891,214
Recommended Projects	528	132	Brooks St. (Reserve to Paxson) complete street	City	MRA	$2,200,000	$2,923,751			$2,923,751			
	158	128	Complete Street Improvements: South Ave. (Reserve to 36th) including intersection improvements at Old Fort and South Ave	City	Local	$4,660,000	$4,660,000	$4,660,000					
	394	118.5	East Missoula - Highway 200 complete street reconstruction	County	STPU	$1,835,000	$3,544,792					$475,711	$3,069,081
	469	113	Reconfigure Broadway within existing ROW - Orange St. to Madison, as per the Downtown Master Plan	City	MRA	$2,500,000	$3,322,445			$3,322,445			
	152	104.5	Front/Main conversion to 2-way streets	City	MRA	$5,000,000	$6,644,889			$6,644,889			
	154	103.5	Street Improvements: 3rd (Reserve to Hiberta)	City/County	STPU	$1,400,000	$2,704,474					$362,940	$2,341,533
	397	98	Reconstruct Curtis St to make it a complete street	City	Local	$770,000	$1,023,313			$1,023,313			
	398	93.5	Reconstruct River Road from Russell to Reserve as a complete street	City	Local	$1,210,000	$1,608,063			$1,608,063			
	14	93	Higgins Avenue: 3-Lane conversion from Brooks Street to Broadway as detailed in the Downtown Master Plan (excluding bridge)	City	Local	$2,500,000	$3,322,445			$3,322,445			
	370	88.5	Reconstruction to Complete Street standards - Russell St. from Mount to Brooks	City	Local	$2,500,000	$4,829,417					$4,829,417	
	155	88	Street Improvements: California (3rd to Dakota)	City	MRA	$1,000,000	$1,931,767					$1,931,767	
	336	87.5	Johnson Street: Extend from South Avenue to Brooks Street	City	MRA	$2,500,000	$2,549,932					$2,549,932	
	379	83.5	Carousel Drive reconfiguration	City	Local	$500,000	$965,883					$965,883	
	420	83.5	Intersection improvement at Mullan Rd & Mary Jane Blvd		Local	$100,000	$193,177					$193,177	
	132	73.5	Intersection Improvements: Bancroft/South Ave	City	Local	$300,000	$579,530					$579,530	
	468	67.5	Brooks St. (Stephens to Mount) reconstruct to complete street	City	MRA	$500,000	$965,883					$965,883	
	421	66	Intersection improvement at Higgins Ave & Pattee Creek Rd	City	Local	$100,000	$193,177					$193,177	
	126	65	Intersection Improvements: W. Broadway& George Elmer	MDT/City	Local	$500,000	$965,883					$965,883	
	422	63.5	Intersection Improvements at Gharrett St & 39th St	City	Local	$100,000	$193,177					$193,177	
	147	63	Intersection Improvements: Arthur & South	City	Local	$300,000	$579,530					$579,530	

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Illustrative Projects	13	109.5	Street Improvements: W. Broadway (Orange to Russell) road enhancements, may include complete street improvements or capacity expansion.	City		$5,000,000							
	529	115	Brooks St. (Stephens to Paxson) reconstruct to complete street	City		$15,000,000							
	161	87.5	Street Improvements: Stephens & Fairview Connection	City		$2,000,000							
	128	86	Miller Creek Road widening and intersection improvements (Hwy 93/Miller Creek, Old Hwy 93/Reserve, Reserve/Brooks)	FHWA/MDT/ City		$16,000,000							
	29	82.5	Street Improvements: Mary Jane (England to Broadway)	City		$900,000							
	530	81	Broadway - Orange to Toole 5-lane conversion and complete street improvements			$15,000,000							
	395	80.5	Reconstruct South Ave W from 36th to Clements as a complete street	County		$2,439,000							
	159	80	Street Improvements: Old Grant Creek/ Rogers/ Cemetery Rd.	City		$2,500,000							
	156	76	Street Improvements: Rattlesnake Dr. (Missoula to Creek Crossing)	City		$3,000,000							
	157	73.5	Street Improvements: Complete 5th & 6th Streets from Russell to Reserve	City		$1,000,000							
	387	71	Russell Street extension to connect with I-90	City		$15,000,000							
	531	71	New signal N. Reserve - per URD Master plan	City		$2,100,000							
	35	70.5	Mullan Road: Widen to 2 Lanes plus Auxiliary	MDT/County		$4,136,000							
	36	68.5	Wye/Mullan Plan Collector Routes	City/County		$3,513,000							
	129	68.5	Duncan/Greenough Drive Reconstruction (Minckler - Mtn. View)	City		$2,500,000							
	15	63	Intersection Improvements: W. Broadway& Mary Jane	MDT/City		$500,000							
	124	62	Street Improvements: Mullan (Reserve to Mary Jane) Widening	City		$10,000,000							
	153	59.5	Street Improvements: Complete Johnson St from 3rd to River Road	City		$1,200,000							
	418	58.5	Intersection Improvement at Beckwith Ave & Arthur Ave			$100,000							
	391	58	Old Highway 93 complete street reconstruction			$809,000							
	38	57.5	Higgins Avenue: Widen to 3 Lanes from Brooks St. to South Ave. (with bike lane)	City		$142,000							
	419	56	Intersection improvement at W. Broadway & Flynn Lane			$100,000							
	135	55	14th St./Mount Avenue: Remove Parking and Restripe as 3-Lane Between Russell Street and Reserve Street	City		$62,000							
	390	54.5	Widen South Ave from Arthur to Bancroft from 2 lanes to 4 lanes			$3,484,000							
	16	48.5	Intersection Improvements: Miller Creek & Briggs	City		$250,000							
	378	47	Clay street reconfiguration			$235,000							
	381	47	New Jefferson Street Extension			$196,500							
	46	45.5	Intersection Improvements: Grant Creek/ Prospect	City		$50,000							
	385	45	Orange Street turn pocket at Alder intersection			$1,500,000							
	532	45	Downtown ADA parking enhancement	City		$100,000							
	533	43.5	Mullan Road multi-modal and street improvements from Pulp Mill Rd to Frenchtown	MDT		$8,000,000							
	424	38.5	Street improvement: Grant Creek reconstruction (Prospect to Snow Bowl Rd)	County		$6,058,000							
	127	37.5	Intersection Improvements: England & George Elmer	City		$500,000							
	33	37	Street Improvements: England (Flynn to George Elmer)	City		$1,500,000							
	376	37	Railyard street grid	City		$1,098,000							
	31	34.5	Street Improvements: George Elmer (Cattle Dr to England)	City		$2,000,000							
					Totals	**$377,873,584**	**$266,526,192**	**$21,304,673**	**$97,034,875**	**$25,503,564**	**$47,419,698**	**$21,765,703**	**$57,799,399**
					Federal		**$202,253,973**						
					State/Local		**$68,573,940**						

Non-motorized Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Committed Projects	94	#N/A	Bitterroot Branch Trail Improved Crossing at Russell	City	STPU	$1,500,000	$2,897,650					$388,865	$2,508,786
	100	#N/A	Bitterroot Trail: Improve at-grade trail crossings to increase visibility/safety for bicyclists and pedestrians	City	TA	$284,600	$284,600	$38,200	$246,400				
	99	93.5	Complete Bitterroot Branch Trail between North and Livingston - Include crossing improvements at Johnson & South	City	MRA	$1,000,000	$1,000,000	$1,000,000					
Recommended Projects	198	118.5	Bitterroot Branch Trail - Pine to Spruce	City	Local	$45,000	$59,804			$59,804			
	175	112.5	Complete North Bank Riverfront Trail from Eastgate to Easy Street	City	Local, MRA	$414,300	$800,331					$800,331	
	402	110.5	City-wide Bicycle Greenways	City	Local	$1,950,000	$2,591,507			$2,591,507			
	184	104.5	Convert Orange St from 1st St to Sixth St into a complete street and increase bicycle and pedestrian access	City	Local	$302,000	$583,394					$583,394	
	359	98	Bike Facility Improvements -- W. Spruce from Orange to Railroad Tracks	City	Local	$51,927	$69,009			$69,009			
	181	90	Reserve Street: Develop Buffered Bike Lanes to Allow for Two Foot Painted Divider - US 93 to S. 3rd Street	City	Local	$50,000	$66,449			$66,449			
	360	90	5th/6th Street improvements for bike/pedestrian access and safety	City	Local	$159,643	$212,161			$212,161			
	534	90	Bike/Ped Bridge from Riverfront Triangle to McCormick Park	City	Local, MRA	$2,500,000	$3,322,445			$3,322,445			
	399	88	Add Bicycle Lanes to N Russell St from Broadway north to the train tracks	City	Local	$17,700	$34,192					$34,192	
	488	88	Bike lanes on Toole Ave (Northside Pedestrian Bridge to Spruce)	City	Local	$12,500	$24,147					$24,147	
	188	86	Northbank Riverfront Trails per West Broadway Corridor Plan	City	Local, MRA	$1,000,000	$1,931,767					$1,931,767	
	338	83.5	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection	City	Local	$172,586	$333,396					$333,396	
	361	83.5	Highway 200 Multi-use path - Sha-Ron to Tamarack	County	STPU	$2,565,018	$4,955,017					$664,963	$4,290,053
	365	83	Bike Lanes - N. 5th St., Worden, Cooley	City	Local	$139,205	$268,911					$268,911	
	433	83	Bicycle Lane: Paxson St from the Southgate Mall to 39th St	City	Local	$16,800	$32,454					$32,454	
	189	82.5	Northbank Riverfront Trail - Russell to Reserve	City	Local	$1,000,000	$1,931,767					$1,931,767	
	388	80.5	Bike lane on Johnsons from South to 3rd st	City	Local	$37,500	$72,441					$72,441	
	382	78.5	Reconfigure N. 2nd St to complete street	City	Local	$360,000	$695,436					$695,436	
	183	78	Stephens Avenue: Add bike lanes from Brooks to South	City	Local	$25,000	$48,294					$48,294	
	187	73.5	Construct Reserve Bike/Ped Crossings at Spurgin, 7th, and River Rd.	City	Local	$3,000,000	$5,795,300					$5,795,300	
	353	73.5	North Avenue Bike Path: Clements - 37th	County	STPU	$368,955	$712,734					$95,649	$617,085
	179	71	Develop Whitaker Bike and Pedestrian Facilities to/from SW Higgins Avenue	City	Local	$238,000	$459,760					$459,760	
	367	71	Trail - Scott St. to Interstate Greenway	City	Local, MRA	$490,110	$946,778					$946,778	
	177	70	Install Sidewalk in the South Hills (Gharrett, 23rd, Hillview Way, 55th, Country Club)	City	Local	$159,000	$307,151					$307,151	
	369	68.5	Shared-use path connection - Strand to Burlington	City	Local, MRA	$47,333	$91,436					$91,436	
	536	68.5	Post Siding Road shared-use path connection	City	Local	$368,000	$710,890					$710,890	
	431	68	Bicycle Lane: Beckwith/Walnut from Stephens to 1st St	City	Local	$22,800	$44,044					$44,044	
	349	66	Bitterroot Branch Trail River Crossing	City	Local	$1,500,000	$2,897,650					$2,897,650	
	355	66	Intersection Improvements at: Clements & Mount, Clements & Spurgin, Clements & S. 7th W, South Ave.& 40th Ave.	County	STPU	$300,000	$579,530					$77,773	$501,757
	475	66	Mullan Road Trail – Flynn Lane to Reserve Street	City	Local	$775,000	$1,497,119					$1,497,119	
	518	66	Milwaukee Trail connection to Hawthorne school	City/County	Local	$100,000	$193,177					$193,177	
	519	66	Bike/Ped bridge - Missoula College to Kim Williams trail	City	Local, MRA	$2,500,000	$4,829,417					$4,829,417	
	466	65.5	Intersection of Higgins and Brooks Bicycle Slip Lane	City/MDT	Local	$15,000	$28,977					$28,977	
	371	93.5	Shared-use path connection - Madison Pedestrian Bridge to Front St	City/MDT		$88,528							
	164	86	Street Improvements: Orange Street Underpass	City		$15,000,000							
	535	85	Shared-use path connection through the fairgrounds	City		$2,500,000							

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
Illustrative Projects	372	73.5	Trail Connection - Madison St. underbridge to Arthur Street.	City/MDT		$88,456							
	520	65	Bicycle Wayfinding			$200,000							
	337	63.5	Inverness Place Trail Extension	City		$84,455							
	340	63.5	Mountain View Dr. Bike/Ped facilities - Rattlesnake Drive to Duncan Dr.	City		$83,000							
	435	63	Bicycle Lane: Gharrett St from 39th to Briggs St	City		$6,600							
	521	60.5	Shared-use path from Bitterroot Trail/Hwy 93 to Blue Mountain Recreation Area	County		$200,000							
	343	58.5	Bike/ped facilities parallel to Lincoln Hills Dr. from Rattlesnake to Applehouse.	City		$202,407							
	352	58	Target Range Bike Paths: Tower: South Ave. to 3rd, 33rd: South to 3rd, 3rd: Reserve to Clements, Spurgin: Clements to Tower	County		$3,101,561							
	432	58	Bicycle Lane: Briggs St from Miller Creek to South Reserve St	City		$11,700							
	377	57.5	Pedestrian Undercrossing connecting downtown to the Northside neighborhood			$25,000,000							
	522	57.5	Northside Riverfront Trail improvements - widen & connection at Bess Reed park	City		$180,000							
	341	56	Bicycle/pedestrian facilities parallel to Creek Crossing to Tamarack.	City		$50,000							
	434	55.5	Bicycle Lane: 23rd St from 39th St to Garland	City		$20,000							
	101	55	River Road complete street - California St. to Russell St.	City		$124,600							
	348	54.5	Downtown Streetscape	City		$25,000,000							
	400	50.5	Add bicycle lane to Hiberta from Spurgin Rd north to S 3rd St W	County		$12,500							
	380	50	North Riverfront Trail reconfiguration			$86,500							
	523	50	Trail system wayfinding			$0							
	93	48.5	Milwaukee Trail - Reserve to Mullan	City/County		$4,250,000							
	196	48.5	Southbank Riverfront, Russell to Reserve	City		$258,000							
	344	48.5	Bicycle/pedestrian facilities parallel to E side of Soccer Fields.	City		$629,098							
	524	48.5	Milwaukee Trail lighting - California to Reserve			$650,000							
	96	48.5	Grant Creek Trail to Snowbowl Rd. - County Phase II: Mellot to Snowbowl Rd.	County		$285,000							
	342	47.5	Bicycle/pedestrian facilities parallel to Tamarack to USFS Trailhead	City		$159,565							
	366	45	Trail - Ped. Bridge to Madison	City/MDT		$537,033							
	197	43.5	Milwaukee Trail Mullan to Deschamps Ln.	County		$887,000							
	180	43	Develop on-street bike system from Reserve Street to the Bitterroot River: Tower Rd	County		$405,000							
	191	41	South Hills Trail to Pattee Canyon	City		$2,940,000							
	345	40	Bicycle/pedestrian facilities parallel to Lincoln Hills Drive--Applehouse to Contour.	City		$648,322							
	190	38.5	Wye Mullan Neighborhood Trails (excluding Milwaukee and Mullan Rd.)	City/County		$2,793,600							
	351	35	Northside Greenway Trail between Northside Park and Scott Street	City		$561,710							
	354	30.5	Clements Road Bike Path: Relocate segment between Mount & North Avenues from the east side of the street to west side.	County		$187,119							
	193	28.5	Rattlesnake Dr. Trail from intersection of Rattlesnake and Creek Crossing to main FS Trailhead 6	City		$640,000							
	194	26	Duncan Dr. Trail from Mountain View to end of Duncan Dr.	City		$960,000							
	176	25	Fort Missoula to McClay Flats - including bridge over Bitterroot River	City		$1,727,000							
	474	17.5	Kim Williams Trail Extension - Edgell Property to Clark Fork River			$893,000							
	339	17	Bike/Ped Bridge from Mullan Rd. to Missoula Ready Mix site	City		$1,251,650							
	392	15	Trail connection with Bridge over the Bitterroot River connecting Forest Hill Lane with Bigfork road			$750,000							
	525	15	Kim Williams extension to Milltown Damn/river confluence (including bridge over Clark Fork River	City/County		$2,500,000							
	526	12.5	Miller Creek Trails			$3,750,000							

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020		2021-2030		2031-2045	
								State/Local	Federal	State/Local	Federal	State/Local	Federal
	350	0	Westside Greenway Trail	City		$2,027,639							
	383	0	Northside Bikeway			$868,312							
	472	0	Trail Lighting - Bitterroot Branch Trail	City		$2,500,000							
	539	#N/A	People's Way trail phase 1 - Wye (I-90 & Hwy 93 interchange) to Evaro	CSKT/MDT		$6,469,195							
	527	0	Automated Bicycle & Pedestrian Counters			$0							
					Totals	**$135,056,526**	**$41,309,135**	**$1,038,200**	**$246,400**	**$6,321,375**	**$0**	**$25,785,479**	**$7,917,681**
					Federal		**$8,164,081**						
					State/Local		**$33,145,054**						

Roadway Maintenance Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Commited Projects	58	N/A	Purchase Street Cleaners - City and County	MPO	CMAQ	$10,048,333	$10,048,333	$307,318	$1,982,682	$416,467	$2,686,866	$624,701	$4,030,299
	59	N/A	Ongoing Roadway Operations & Maintenance	City/County/MDT	MACI, NH, STPS,	$144,273,132	$144,273,132	$21,948,426	$5,880,600	$44,258,968		$72,185,138	
	60	N/A	I-90: Frenchtown East and West	MDT	IM	$991,000	$991,000	$86,800	$904,200				
	102	N/A	Annual Sidewalk Installation/Replacement Program	City	Local	$18,000,000	$18,000,000	$3,000,000		$6,000,000		$9,000,000	
		N/A	Missoula ADA upgrades	MDT	MACI	$4,555,400	$4,555,442	$611,342	$3,944,100				
		N/A	Reserve St Interchange - E & W pavement preservation	MDT	IM	$5,606,200	$5,606,200	$491,100	$5,115,100				
	516	N/A	Bridge Maintenance - Steel Bridge Rehabilitation (6 bridges in Missoula area)	MDT	BR	$268,200	$268,200	$36,000	$232,200				
		N/A	Placeholder for future IM projects	MDT	IM	$4,250,127	$4,250,127			$140,515	$1,463,538	$231,796	$2,414,278
		N/A	Placeholder for future NH projects	MDT	NH	$5,360,290	$5,360,290			$177,219	$1,845,825	$292,343	$3,044,904
		N/A	Placeholder for future UPP projects	MDT	UPP	$10,349,263	$10,349,263			$524,178	$3,381,769	$864,693	$5,578,624
		N/A	Placeholder for future STPX/STPS/SFCN projects	MDT	STPX/STPS/SFCN	$7,221,873	$7,221,873			$365,779	$2,359,850	$603,396	$3,892,848
		N/A	Placeholder for future MACI projects	MDT	MACI	$26,750,217	$26,750,217			$1,354,867	$8,741,013	$2,235,012	$14,419,325
Illust Proj	123	N/A	East Missoula Street/Alley Paving	County	Local	$266,000							
	167	N/A	Reserve (Dowel Bar Retrofit) from US93 to 3rd Street 7	City	Local	$2,200,000							
					Totals	**$240,140,037**	**$237,674,079**	**$26,480,986**	**$18,058,882**	**$53,237,994**	**$20,478,860**	**$86,037,079**	**$33,380,278**
					Federal		**$71,918,020**						
					State/Local		**$165,756,059**						

Intelligent Transportation System Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Recom. Projects	437	N/A	Traffic Signal Controllers	MDT/City	CMAQ	$500,000	$664,489					$89,174	$575,314
	479	N/A	Advanced Signal Detectors	MDT/City	CMAQ	$1,000,000	$1,328,978					$178,349	$1,150,629
	480	N/A	Adaptive Signal Control System	MDT/City	CMAQ	$1,000,000	$1,328,978					$178,349	$1,150,629
	481	N/A	Transit Priority System for Signalized Intersections	MDT/City	CMAQ	$500,000	$664,489					$89,174	$575,314
					Totals	**$3,000,000**	**$3,986,933**	**$0**	**$0**	**$0**	**$0**	**$535,046**	**$3,451,887**
					Federal		**$3,451,887**						
					State/Local		**$535,046**						

Transportation Options Programs/Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Committed Projects	119	#N/A	Bike and Pedestrian Program (30 Years @ $30,000 per Year)	MPO	CMAQ	$888,114	$1,326,000	$29,658	$191,342	$59,316	$382,684	$88,975	$574,025
	120	#N/A	Missoula in Motion (30-Years @ $320,000 per Year)	MPO	CMAQ	$7,279,574	$9,600,000	$214,720	$1,385,280	$429,440	$2,770,560	$644,160	$4,155,840
		#N/A	Vanpool Operations, Administration & Maintenance	MRTMA	5311	$1,138,764	$1,138,764	$23,626	$152,424	$49,399	$318,704	$79,797	$514,814
		#N/A	Vanpool Capital purchases (vans, carpool vehicles)	MRTMA	5311	$5,993,150	$5,993,150	$210,415	$716,111	$439,957	$1,497,317	$710,679	$2,418,672
	386	#N/A	MRTMA (28-Years @ $125,700 per year)	MPO	CMAQ	$3,036,000	$3,036,000	$67,905	$438,095	$135,810	$876,190	$203,716	$1,314,284
Illust Proj	477	#N/A	Missoula Car Share Project phase I	City/MPO									
	478	#N/A	Missoula Car Share Project phase II	City/MPO									
					Totals	**$18,335,601**	**$21,093,913**	**$546,324**	**$2,883,252**	**$1,113,923**	**$5,845,453**	**$1,727,326**	**$8,977,636**
					Federal		**$17,706,341**						
					State/Local		**$3,387,573**						

Safety Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Com Proj	515	#N/A	Reserve Street Bridge safety barrier over Clark Fork River: Mullan Rd. to River Rd.	MDT	HSIP	$1,101,370	$1,101,370	$110,137	$991,233				
			Safety upgrades/maintenance improvements	MDT	HSIP	$3,657,800	$4,444,282	$317,848	$4,126,434	$825,193	$7,426,740	$1,361,253	$12,251,277
	517	#N/A	I-90 Safety Barrier near Frenchtown: MP 84.2-94.4	MDT	HSIP	$700,700	$700,700	$70,100	$630,600				
Rec Proj	48	#N/A	Intersection Improvements: George Elmer Drive & Mullan signal	City	Local funds	$450,000	$869,295					$869,295	
Illust	42	#N/A	Intersection Improvements: Cregg Lane & Orange Street Traffic Signal	City	funds	$400,000							
	47	#N/A	Intersection Improvements: England & Mary Jane	City	Local funds	$500,000							
	136	#N/A	from Dixon to Buckhouse Bridge; Broadway from Reserve to Bitterroot Branch Railroad	MDT	STPU	$450,000							
	138	#N/A	Intersection Improvements: Great Northern/ Railroad & W. Broadway	City	Local funds	$300,000							
	139	#N/A	Intersection Improvements: 14th & Eaton	City	Local funds	$200,000							
	140	#N/A	Intersection Improvements: Johnson & North Avenue	City	Local funds	$300,000							
	141	#N/A	Intersection Improvements: Mary & Reserve	City	aid	$500,000							
	143	#N/A	Intersection Improvements: Fairview & Russell	City	aid	$500,000							
	144	#N/A	Intersection Improvements: River Road & Reserve	MDT		$500,000							
	145	#N/A	Intersection Improvements: Spurgin & Reserve	MDT		$500,000							
	146	#N/A	Intersection Improvements: 7th & Reserve	MDT		$500,000							
	148	#N/A	Intersection Improvements: South & Higgins	City	Local funds	$500,000							
	149	#N/A	Intersection Improvements: Lolo & Greenough	City	Local funds	$300,000							
	150	#N/A	Intersection Improvements: Lolo & Rattlesnake	City	Local funds	$300,000							
	363	#N/A	Intersection Improvement - N. 5th St./Worden/Stoddard	City		$300,000							
	368	#N/A	Lighting - Northside Greenway	City	Local funds	$150,000							
	407	#N/A	Install enhanced streetlighting on Russell Street at the YMCA location (between Benton Ave and Ernest Ave)	City		$12,500							
	414	#N/A	Construct a pedestrian overpass of the Mullan and Reserve intersections	City		$1,500,000							
	439	#N/A	SAFETY IMPROVEMENTS AT DICKENS ST & PALMER ST			$20,000							
	440	#N/A	SAFETY IMPROVEMENTS AT GRANT ST & SOUTH AVE			$145,000							
	441	#N/A	SAFETY IMPROVEMENTS AT CENTRAL AVE & SCHILLING ST			$20,000							
	442	#N/A	SAFETY IMPROVEMENTS AT MAIN ST & RYMAN ST			$145,000							
	443	#N/A	SAFETY IMPROVEMENTS AT MAIN ST & PATTEE ST			$90,000							
	444	#N/A	SAFETY IMPROVEMENTS AT BROADWAY & SCOTT ST			$90,000							
	445	#N/A	SAFETY IMPROVEMENTS AT BROADWAY & MAPLE ST			$210,000							
	446	#N/A	SAFETY IMPROVEMENTS AT 5TH ST SOUTH & ORANGE ST			$90,000							
	447	#N/A	SAFETY IMPROVEMENTS AT MOUNT AVE & RUSSELL ST			$130,000							
	448	#N/A	SAFETY IMPROVEMENTS AT CLARK FORK LN & MULLAN RD			$130,000							
	450	#N/A	SAFETY IMPROVEMENTS AT BROADWAY & RYMAN ST			$145,000							
	451	#N/A	SAFETY IMPROVEMENTS AT JOHNSON ST & SOUTH AVE			$145,000							
	452	#N/A	SAFETY IMPROVEMENTS AT CENTRAL AVE & RONALD AVE			$25,000							
	453	#N/A	SAFETY IMPROVEMENTS AT GRANT ST & MCDONALD AVE			$25,000							
	467	#N/A	Campus Street Crossings			$0							
	514	#N/A	New signal at Mullan Rd & Flynn Ln			$480,000							
					Totals	**$15,512,370**	**$7,115,647**	**$498,085**	**$5,748,267**	**$825,193**	**$7,426,740**	**$2,230,548**	**$12,251,277**
					Federal		**$25,426,284**						
					State/Local		**$3,553,827**						

Transportation Studies

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Illustrative Projects	12	N/A	Reserve Street Corridory Safety Plan	MDT/City	HSIP, State	$750,000							
	470	N/A	Planning and Feasibility Study - Missoula Bike Share	City	STPU, Local funds	$50,000							
	471	N/A	Mid-Town and Missoula County Fairgrounds off-site Parking and Alternative Transportation Study	City/County	STPU, Local funds	$50,000							
	476	N/A	South Ave. Bike/Ped Corridor Study	City	STPU, Local funds	$75,000							
	487	N/A	Higgins Reconfiguration Study: To study feasibility of different treatments to improve access and safety for all modes, including conversion to three lanes.	City	STPU, Local funds	$75,000							
	487.5	N/A	Broadway reconfiguration study: to study feasibility of different treatments to improve access and safety for all modes, including conversion to three lanes.	City	STPU, Local funds	$75,000							
	487.5	N/A	Orange St reconfiguration study: to study feasibility of different treatments to improve access and safety for all modes, including conversion to three lanes.	City	STPU, Local funds	$75,000							
					Totals	**$1,150,000**							

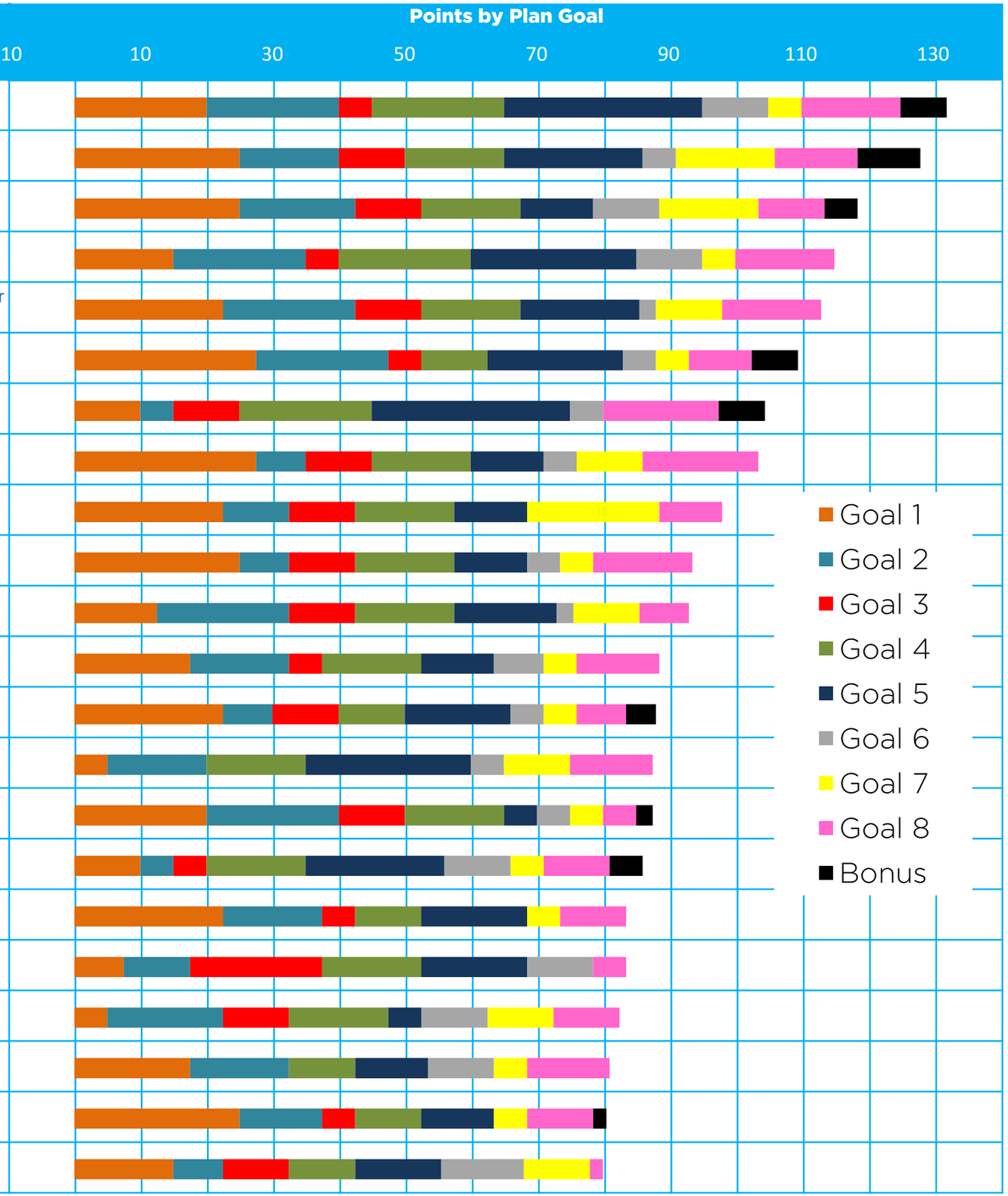
Transit - Capital Projects

2016 Status	ID	Score	PROJECT	Agency	Funding Source	Total Cost ($) Current Year	Cost ($) Future Year	2016-2020 State/Local	2016-2020 Federal	2021-2030 State/Local	2021-2030 Federal	2031-2045 State/Local	2031-2045 Federal
Committed Projects	Transit		Operations	MUTD	CMAQ, 5307, TRANSADE, Mill Levy, Other	$218,277,627	$218,277,627	$23,849,127	$9,332,491	$51,112,526	$19,216,589	$84,011,649	$30,755,246
	Transit		Capital purchases (buses, paratransit vans, other)	MUTD	5339	$3,556,196	$3,556,196	$109,956	$439,823	$229,907	$919,626	$371,377	$1,485,507
	Transit		Paratransit capital purchases (paratransit vans)	MUTD, ORI, AWARE	5310	$4,001,941	$4,001,941	$123,738	$494,952	$258,724	$1,034,895	$417,926	$1,671,705
	Transit		Capital purchases (buses, paratransit vans, other)	MUTD	CMAQ	$5,574,901	$5,574,901	$82,439	$531,861	$218,146	$1,407,380	$447,567	$2,887,508
	Transit		Marketing & Education	MUTD	CMAQ	$142,200	$142,200	$19,083	$123,117	$0	$0	$0	$0
Rec Proj	Transit		Transit bus purchase - 15 buses to expand service and implement MUTD Phase 3 (service on Brooks Street)	MUTD	STPU	$15,200,000	$15,200,000					$2,039,840	$13,160,160
Illust Proj		417	Construct a transfer center located at the Southgate Mall	MUTD	Local, MRA, FTA	$3,000,000							
			Brooks St - Transit stops	MUTD	STPU, Local	$2,500,000							
			MUTD bus stop master plan implementation	MUTD	Local, MRA, FTA								
			Bitterroot to Missoula passenger rail	MUTD/other	Unknown								
					Totals	**$252,252,864**	**$246,752,864**	**$24,184,343**	**$10,922,243**	**$51,819,301**	**$22,578,491**	**$87,288,359**	**$49,960,126**
					Federal		**$83,460,860**						
					State/Local		**$163,292,004**						

Appendix C: Project Scoring & Ranking

Roadway Project Ranking

ID	Project Name
528	Brooks St. (Reserve to Paxson) complete street
158	Complete Street Improvements: South Ave. (Reserve to 36th) including intersection improvements at Old Fort and South Ave
394	East Missoula - Highway 200 complete street reconstruction
529	Brooks St. (Stephens to Paxson) reconstruct to complete street
469	Reconfigure Broadway within existing ROW - Orange St. to Madison, as per the Downtown Master Plan
13	Street Improvements: W. Broadway (Toole to Mullan) road enhancements, may include complete street improvements.
152	Front/Main conversion to 2-way streets
154	Street Improvements: 3rd (Reserve to Hiberta)
397	Reconstruct Curtis St to make it a complete street
398	Reconstruct River Road from Russell to Reserve as a complete street
14	Higgins Avenue: 3-Lane conversion from Brooks Street to Broadway as detailed in the Downtown Master Plan (excluding bridge)
370	Reconstruction to Complete Street standards - Russell St. from Mount to Brooks
155	Street Improvements: California (3rd to Dakota)
161	Street Improvements: Stephens & Fairview Connection
336	Johnson Street: Extend from South Avenue to Brooks Street
128	Miller Creek Road widening and intersection improvements (Hwy 93/Miller Creek, Old Hwy 93/Reserve, Reserve/Brooks)
379	Carousel Drive reconfiguration
420	Intersection improvement at Mullan Rd & Mary Jane Blvd
29	Street Improvements: Mary Jane (England to Broadway)
530	Broadway - Orange to Toole 5-lane conversion and complete street improvements
395	Reconstruct South Ave W from 36th to Clements as a complete street
159	Street Improvements: Old Grant Creek/ Rogers/ Cemetery Rd.

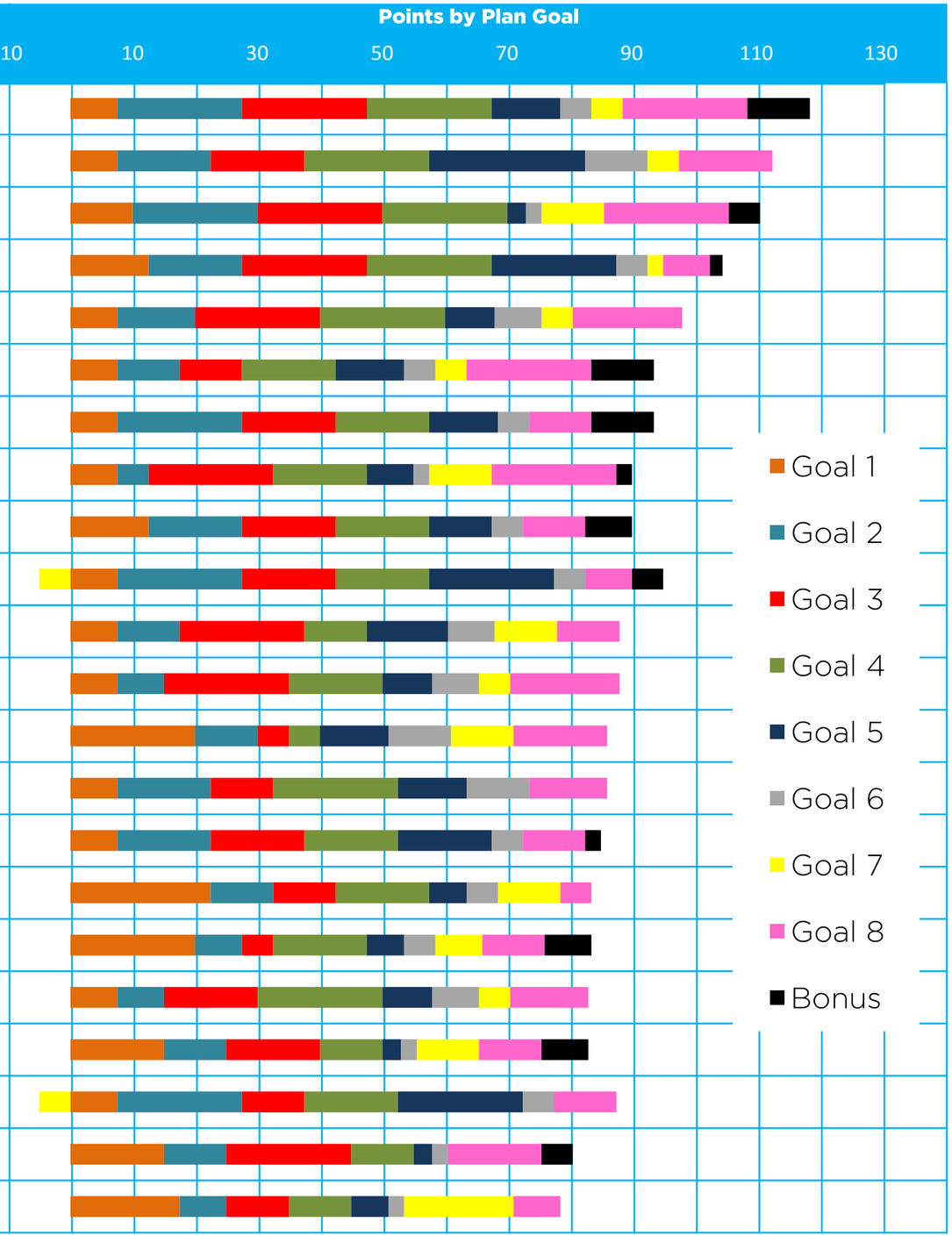


156	Street Improvements: Rattlesnake Dr. (Missoula to Creek Crossing)	
132	Intersection Improvements: Bancroft/South Ave	
157	Street Improvements: Complete 5th & 6th Streets from Russell to Reserve	
387	Russell Street extension to connect with I-90	
531	New signal N. Reserve - per URD Master plan	
35	Mullan Road: Widen to 2 Lanes plus Auxiliary	
36	Wye/Mullan Plan Collector Routes	
129	Duncan/Greenough Drive Reconstruction (Minckler - Mtn. View)	
468	Brooks St. (Stephens to Mount) reconstruct to complete street	
421	Intersection improvement at Higgins Ave & Pattee Creek Rd	
126	Intersection Improvements: W. Broadway& George Elmer	
422	Intersection Improvements at Gharrett St & 39th St	
15	Intersection Improvements: W. Broadway& Mary Jane	
147	Intersection Improvements: Arthur & South	
124	Street Improvements: Mullan (Reserve to Mary Jane) Widening	
153	Street Improvements: Complete Johnson St from 3rd to River Road	
418	Intersection Improvement at Beckwith Ave & Arthur Ave	
391	Old Highway 93 complete street reconstruction	
38	Higgins Avenue: Widen to 3 Lanes from Brooks St. to South Ave. (with bike lane)	
419	Intersection improvement at W. Broadway & Flynn Lane	
135	14th St./Mount Avenue: Remove Parking and Restripe as 3-Lane Between Russell Street and Reserve Street	
390	Widen South Ave from Arthur to Bancroft from 2 lanes to 4 lanes	
16	Intersection Improvements: Miller Creek & Briggs	
378	Clay street reconfiguration	

381	New Jefferson Street Extension												
46	Intersection Improvements: Grant Creek/ Prospect												
385	Orange Street turn pocket at Alder intersection												
532	Downtown ADA parking enhancement												
533	Mullan Road multi-modal and street improvements from Pulp Mill Rd to Frenchtown												
424	Street improvement: Grant Creek reconstruction (Prospect to Snow Bowl Rd)												
127	Intersection Improvements: England & George Elmer												
33	Street Improvements: England (Flynn to George Elmer)												
376	Railyard street grid												
31	Street Improvements: George Elmer (Cattle Dr to England)												

Non-motorized Project Ranking

ID	Project Name
198	Bitterroot Branch Trail - Pine to Spruce
175	Complete North Bank Riverfront Trail from Eastgate to Easy Street
402	City-wide Bicycle Greenways
184	Convert Orange St from 1st St to Sixth St into a complete street
359	Bike Facility Improvements -- W. Spruce from Orange to Railroad Tracks
99	Complete Bitterroot Branch Trail between North and Livingston
371	Shared-use path connection - Madison Pedestrian Bridge to Front St
181	Reserve Street: Develop Buffered Bike Lanes - US 93 to S. 3rd Street
360	5th/6th Street improvements for bike/pedestrian access and safety
534	Bike/Ped Bridge from Riverfront Triangle to McCormick Park
399	Add Bicycle Lanes to N Russell St from Broadway north to the train tracks
488	Bike lanes on Toole Ave (Northside Pedestrian Bridge to Spruce)
164	Street Improvements: Orange Street Underpass
188	Northbank Riverfront Trails per West Broadway Corridor Plan
535	Shared-use path connection through the fairgrounds
338	Emma Dickinson Learning Center-Council Grove Apartments bike-ped connection
361	Highway 200 Multi-use path - Sha-Ron to Tamarack
365	Bike Lanes - N. 5th St., Worden, Cooley
433	Bicycle Lane: Paxson St from the Southgate Mall to 39th St
189	Northbank Riverfront Trail - Russell to Reserve
388	Bike lane on Johnsons from South to 3rd st
382	Reconfigure N. 2nd St to complete street



183	Stephens Avenue: Add bike lanes from Brooks to South	
187	Construct Reserve Bike/Ped Crossings at Spurgin, 7th, and River Rd.	
353	North Avenue Bike Path: Clements - 37th	
372	Trail Connection - Madison St. underbridge to Arthur Street.	
179	Develop Whitaker Bike and Pedestrian Facilities to/from SW Higgins Avenue	
367	Trail - Scott St. to Interstate Greenway	
177	Install Sidewalks in the South Hills (Gharrett, 23rd, Hillview Way, 55th, Country Club)	
369	Shared-use path connection - Strand to Burlington	
536	Post Siding Road shared-use path connection	
431	Bicycle Lane: Beckwith/Walnut from Stephens to 1st St	
349	Bitterroot Branch Trail River Crossing	
355	Intersection Improvements: Clements & Mount, Clements & Spurgin, Clements & S. 7th W., South Ave. and 40th Ave.	
475	Mullan Road Trail – Flynn Lane to Reserve Street	
518	Milwaukee Trail connection to Hawthorne school	
519	Bike/Ped bridge - Missoula College to Kim Williams trail	
466	Intersection of Higgins and Brooks Bicycle Slip Lane	
520	Bicycle Wayfinding	
337	Inverness Place Trail Extension	
340	Mountain View Dr. Bike/Ped facilities - Rattlesnake Drive to Duncan Dr.	
435	Bicycle Lane: Gharrett St from 39th to Briggs St	
521	Shared-use path from Bitterroot Trail/Hwy 93 to Blue Mountain Recreation Area	
343	Bicycle/pedestrian facilities parallel to Lincoln Hills Dr. from Rattlesnake to Applehouse	
352	Target Range Bike Paths	
432	Bicycle Lane: Briggs St from Miller Creek to South Reserve St	

377	Pedestrian Undercrossing connecting downtown to the Northside neighborhood	
522	Northside Riverfront Trail improvements - widen & connection at Bess Reed park	
341	Bicycle/pedestrian facilities parallel to Creek Crossing to Tamarack	
434	Bicycle Lane: 23rd St from 39th St to Hillview Way	
101	River Road complete street - California St. to Russell St.	
348	Downtown Streetscape	
400	Add bicycle lane to Hiberta from Spurgin Rd north to S 3rd St W	
380	North Riverfront Trail reconfiguration	
523	Trail system wayfinding	
93	Milwaukee Trail - Reserve to Mullan	
196	Southbank Riverfront, Russell to Reserve	
344	Bicycle/pedestrian facilities parallel to E side of Soccer Fields	
524	Milwaukee Trail lighting - California to Reserve	
96	Grant Creek Trail to Snowbowl Rd. - County Phase II: Mellot to Snowbowl Rd.	
342	Bicycle/pedestrian facilities parallel to Tamarack to USFS Trailhead	
366	Trail - Ped. Bridge to Madison	
197	Milwaukee Trail Mullan to Deschamps Ln.	
180	Develop County On-street Bike System from Reserve Street to the Bitterroot River: Tower Rd	
191	South Hills Trail to Pattee Canyon	
345	Bicycle/pedestrian facilities parallel to Lincoln Hills Drive--Applehouse to Contour	
190	Wye Mullan Neighborhood Trails (excluding Milwaukee and Mullan Rd.)	
351	Northside Greenway Trail between Northside Park and Scott Street	
354	Clements Road Bike Path: Relocate segment between Mount & North Avenues	
193	Rattlesnake Dr. Trail from intersection of Rattlesnake and Creek Crossing to main FS Trailhead 6	

194	Duncan Dr. Trail from Mountain View to end of Duncan Dr.																
176	Fort Missoula to McClay Flats - including bridge over Bitterroot River																
474	Kim Williams Trail Extension - Edgell Property to Clark Fork River																
339	Bike/Ped Bridge from Mullan Rd. to Missoula Ready Mix site																
392	Trail with Bridge over the Bitterroot River connecting Forest Hill Lane with Bigfork road																
525	Kim Williams extension to Milltown Damn/river confluence (including bridge over Clark Fork River																
526	Miller Creek Trails																
350	Westside Greenway Trail																
383	Northside Bikeway																
472	Trail Lighting - Bitterroot Branch Trail																
527	Automated Bicycle & Pedestrian Counters																

Appendix D: Revenue Projections

					2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	
	Amounts include Federal + match																																	
	Amounts shown in $000's				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	Primary	MATCH RATIO																																
	Recipient	Federal	Non-Federal	Carryover	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	**TOTALS**
OTHER (Federal and State)					44,513.9																													
IM*	MDT	91.24%	8.76%		4,231.6	34,475.9	308.8	5,497.6		1,053.6	1,053.6	1,053.6	1,053.6	1,053.6	1,085.2	1,085.2	1,085.2	1,085.2	1,085.2	1,117.7	1,117.7	1,117.7	1,117.7	1,117.7	1,151.3	1,151.3	1,151.3	1,151.3	1,151.3	1,185.8	1,221.4	1,258.0	1,295.8	1,334.6	72,848.1
NH*	MDT	91.24%	8.76%		6,099.3	1,277.7	7,253.2			569.5	569.5	569.5	569.5	569.5	586.6	586.6	586.6	586.6	586.6	604.2	604.2	604.2	604.2	604.2	622.3	622.3	622.3	622.3	622.3	640.9	660.2	680.0	700.4	721.4	29,945.3
MACI*	MDT	86.58%	13.42%		440.5	3,559.0	2,000.0			994.7	994.7	994.7	994.7	994.7	1,024.5	1,024.5	1,024.5	1,024.5	1,024.5	1,055.2	1,055.2	1,055.2	1,055.2	1,055.2	1,086.9	1,086.9	1,086.9	1,086.9	1,086.9	1,119.5	1,153.1	1,187.7	1,223.3	1,260.0	32,749.7
STPS/SFPX/SFCN	MDT	86.58%	13.42%		556.4	3,094.1	129.0	129.0		1,678.3	1,678.3	1,678.3	1,678.3	1,678.3	1,728.7	1,728.7	1,728.7	1,728.7	1,728.7	1,780.6	1,780.6	1,780.6	1,780.6	1,780.6	1,834.0	1,834.0	1,834.0	1,834.0	1,834.0	1,889.0	1,945.7	2,004.0	2,064.2	2,126.1	49,045.1
HSIP*	MDT	90.00%	10.00%		2,103.5	1,338.2	2,018.2			813.0	813.0	813.0	813.0	813.0	837.4	837.4	837.4	837.4	837.4	862.5	862.5	862.5	862.5	862.5	888.4	888.4	888.4	888.4	888.4	915.0	942.5	970.8	999.9	1,029.9	27,324.3
TA*	CI/CO	86.58%	13.42%		284.6																													284.6
UPP*	MDT	86.58%	13.42%		972.4					384.8	384.8	384.8	384.8	384.8	396.4	396.4	396.4	396.4	396.4	408.3	408.3	408.3	408.3	408.3	420.5	420.5	420.5	420.5	420.5	433.1	446.1	459.5	473.3	487.5	11,321.7
Bridge*	MDT	86.58%	13.42%		10,025.2	12,000.0	288.2	0.0	10,931.0	870.2	870.2	870.2	870.2	870.2	896.4	896.4	896.4	896.4	896.4	923.2	923.2	923.2	923.2	923.2	950.9	950.9	950.9	950.9	950.9	979.5	1,008.9	1,039.1	1,070.3	1,102.4	56,648.4
Reconstruction/Maintenance	MDT	0.00%	100.00%		1,756.4	1,756.4	1,756.4	1,756.4	1,809.1	1,809.1	1,809.1	1,809.1	1,809.1	1,809.1	1,863.4	1,863.4	1,863.4	1,863.4	1,863.4	1,863.4	1,919.3	1,919.3	1,919.3	1,919.3	1,919.3	1,976.9	1,976.9	1,976.9	1,976.9	1,976.9	2,036.2	2,036.2	2,036.2	2,036.2	2,036.2	2,097.3	57,147.7
Subtotal				0.0	26,469.9	57,501.3	13,753.8	7,383.0	12,740.1	8,173.2	8,173.2	8,173.2	8,173.2	8,227.5	8,418.4	8,418.4	8,418.4	8,418.4	8,474.3	8,671.0	8,671.0	8,671.0	8,671.0	8,728.6	8,931.1	8,931.1	8,931.1	8,931.1	8,990.4	9,199.1	9,413.9	9,635.3	9,863.2	10,159.1	337,314.9
CMAQ																																		
CMAQ	MPO	86.58%	13.42%	754.7	1,312.6	1,312.6	1,312.6	1,312.6	1,352.0	1,352.0	1,352.0	1,352.0	1,352.0	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,434.3	1,434.3	1,434.3	1,434.3	1,434.3	1,477.4	1,477.4	1,477.4	1,477.4	1,477.4	1,521.7	1,521.7	1,521.7	1,521.7	1,521.7	1,521.7	43,416.2
Subtotal				754.7	1,312.6	1,312.6	1,312.6	1,312.6	1,352.0	1,352.0	1,352.0	1,352.0	1,352.0	1,392.5	1,392.5	1,392.5	1,392.5	1,392.5	1,434.3	1,434.3	1,434.3	1,434.3	1,434.3	1,477.4	1,477.4	1,477.4	1,477.4	1,477.4	1,521.7	1,521.7	1,521.7	1,521.7	1,521.7	1,521.7	43,416.2
STP (Annually Allocated)																																		
STPU	MPO	86.58%	13.42%	15,483.0	1,797.2	1,797.2	1,797.2	1,797.2	1,851.1	1,851.1	1,851.1	1,851.1	1,851.1	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,963.8	1,963.8	1,963.8	1,963.8	1,963.8	2,022.7	2,022.7	2,022.7	2,022.7	2,022.7	2,083.4	2,083.4	2,083.4	2,083.4	2,083.4	2,145.9	73,955.4
Subtotal				15,483.0	1,797.2	1,797.2	1,797.2	1,797.2	1,851.1	1,851.1	1,851.1	1,851.1	1,851.1	1,906.6	1,906.6	1,906.6	1,906.6	1,906.6	1,963.8	1,963.8	1,963.8	1,963.8	1,963.8	2,022.7	2,022.7	2,022.7	2,022.7	2,022.7	2,083.4	2,083.4	2,083.4	2,083.4	2,083.4	2,145.9	73,955.4
FTA																																		
5307 Operating & Capital†	MUTD	50.00%	50.00%		1,591.4	1,591.4	1,591.4	1,591.4	1,639.1	1,639.1	1,639.1	1,639.1	1,639.1	1,688.3	1,688.3	1,688.3	1,688.3	1,688.3	1,738.9	1,738.9	1,738.9	1,738.9	1,738.9	1,791.1	1,791.1	1,791.1	1,791.1	1,791.1	1,844.8	1,844.8	1,844.8	1,844.8	1,844.8	1,900.2	51,776.3
5310 Capital†	VARIOUS	86.58%	13.42%		123.0	123.0	123.0	123.0	126.7	126.7	126.7	126.7	126.7	130.5	130.5	130.5	130.5	130.5	134.4	134.4	134.4	134.4	134.4	138.4	138.4	138.4	138.4	138.4	142.6	142.6	142.6	142.6	142.6	146.9	4,001.9
TRANSADE	MUTD	0.00%	100.00%		28.3	28.3	28.3	28.3	29.1	29.1	29.1	29.1	29.1	30.0	30.0	30.0	30.0	30.0	30.9	30.9	30.9	30.9	30.9	31.9	31.9	31.9	31.9	31.9	32.8	32.8	32.8	32.8	32.8	33.8	920.8
5311 Capital	MRTMA	86.58%	13.42%		35.0	35.0	35.0	35.0	36.1	36.1	36.1	36.1	36.1	37.1	37.1	37.1	37.1	37.1	38.2	38.2	38.2	38.2	38.2	39.4	39.4	39.4	39.4	39.4	40.6	40.6	40.6	40.6	40.6	41.8	1,138.8
5311 Operating	MRTMA	54.00%	46.00%		19.2	19.2	19.2	19.2	19.8	19.8	19.8	19.8	19.8	20.4	20.4	20.4	20.4	20.4	21.0	21.0	21.0	21.0	21.0	21.6	21.6	21.6	21.6	21.6	22.3	22.3	22.3	22.3	22.3	22.9	624.7
5311 Admin	MRTMA	80.00%	20.00%		142.2	142.2	142.2	142.2	146.5	146.5	146.5	146.5	146.5	150.9	150.9	150.9	150.9	150.9	155.4	155.4	155.4	155.4	155.4	160.0	160.0	160.0	160.0	160.0	164.8	164.8	164.8	164.8	164.8	169.8	4,626.6
5311 Preventative Maintenance	MRTMA	80.00%	20.00%		22.8	22.8	22.8	22.8	23.5	23.5	23.5	23.5	23.5	24.2	24.2	24.2	24.2	24.2	24.9	24.9	24.9	24.9	24.9	25.7	25.7	25.7	25.7	25.7	26.4	26.4	26.4	26.4	26.4	27.2	741.8
Subtotal					2,071.2	2,071.2	2,071.2	2,071.2	2,133.3	2,133.3	2,133.3	2,133.3	2,133.3	2,197.3	2,197.3	2,197.3	2,197.3	2,197.3	2,263.2	2,263.2	2,263.2	2,263.2	2,263.2	2,331.1	2,331.1	2,331.1	2,331.1	2,331.1	2,401.0	2,401.0	2,401.0	2,401.0	2,401.0	2,473.1	67,387.1
LOCAL																																		
City Gas Tax	CITY		100.00%		1,085.8	1,085.8	1,085.8	1,085.8	1,118.4	1,118.4	1,118.4	1,118.4	1,118.4	1,152.0	1,152.0	1,152.0	1,152.0	1,152.0	1,186.5	1,186.5	1,186.5	1,186.5	1,186.5	1,222.1	1,222.1	1,222.1	1,222.1	1,222.1	1,258.8	1,258.8	1,258.8	1,258.8	1,258.8	1,296.6	35,329.1
City Impact Fee[%]	CITY		100.00%		736.4	736.4	736.4	736.4	758.5	758.5	758.5	758.5	758.5	781.2	781.2	781.2	781.2	781.2	804.7	804.7	804.7	804.7	804.7	828.8	828.8	828.8	828.8	828.8	853.7	853.7	853.7	853.7	853.7	879.3	23,958.8
City Road Maintenance District	CITY		100.00%		1,608.3	1,608.3	1,608.3	1,608.3	1,656.5	1,656.5	1,656.5	1,656.5	1,656.5	1,706.2	1,706.2	1,706.2	1,706.2	1,706.2	1,757.4	1,757.4	1,757.4	1,757.4	1,757.4	1,810.1	1,810.1	1,810.1	1,810.1	1,810.1	1,864.4	1,864.4	1,864.4	1,864.4	1,864.4	1,920.3	52,326.3
County Gas Tax	COUNTY		100.00%		328.2	328.2	328.2	328.2	338.0	338.0	338.0	338.0	338.0	348.2	348.2	348.2	348.2	348.2	358.6	358.6	358.6	358.6	358.6	369.4	369.4	369.4	369.4	369.4	380.5	380.5	380.5	380.5	380.5	391.9	10,678.0
MRA URD Improvements[$]	MRA		100.00%		1,660.5	1,660.5	1,660.5	1,660.5	1,710.3	1,710.3	1,710.3	1,710.3	1,710.3	1,761.6	1,761.6	1,761.6	1,761.6	1,761.6	1,814.5	1,814.5	1,814.5	1,814.5	1,814.5	1,868.9	1,868.9	1,868.9	1,868.9	1,868.9	1,925.0	1,925.0	1,925.0	1,925.0	1,925.0	1,982.7	54,026.1
MUTD Mill Levy	MUTD		100.00%		4,306.5	4,306.5	4,306.5	4,306.5	4,435.7	4,435.7	4,435.7	4,435.7	4,435.7	4,568.8	4,568.8	4,568.8	4,568.8	4,568.8	4,705.8	4,705.8	4,705.8	4,705.8	4,705.8	4,847.0	4,847.0	4,847.0	4,847.0	4,847.0	4,992.4	4,992.4	4,992.4	4,992.4	4,992.4	5,142.2	140,116.7
MUTD Other Revenue[#]	MUTD		100.00%		421.9	421.9	421.9	430.3	438.9	447.7	456.7	465.8	475.1	484.6	494.3	504.2	514.3	524.6	535.1	545.8	556.7	567.8	579.2	590.8	602.6	614.6	626.9	639.5	652.2	665.3	678.6	692.2	706.0	720.1	16,475.7
Subtotal					10,147.6	10,147.6	10,147.6	10,156.0	10,456.4	10,465.2	10,474.1	10,483.2	10,492.6	10,802.6	10,812.3	10,822.2	10,832.2	10,842.5	11,162.6	11,173.3	11,184.2	11,195.3	11,206.7	11,537.1	11,548.9	11,560.9	11,573.2	11,585.8	11,927.0	11,940.0	11,953.3	11,966.9	11,980.7	12,333.1	332,910.8
EARMARK																																		
Russell Street	City	86.58%	13.42%		737.3	1,639.5																												2,376.8
GRAND TOTAL					**16,237.7**	**42,535.6**	**74,469.3**	**29,082.3**	**22,719.9**	**28,532.8**	**23,974.7**	**23,983.7**	**23,992.8**	**24,002.1**	**24,526.5**	**24,727.1**	**24,737.0**	**24,747.1**	**24,757.4**	**25,298.2**	**25,505.6**	**25,516.5**	**25,527.6**	**25,539.0**	**26,096.8**	**26,311.2**	**26,323.2**	**26,335.5**	**26,348.1**	**26,923.5**	**27,145.2**	**27,373.3**	**27,608.3**	**27,850.1**	**28,632.9**	**857,361.2**

* There is no annual allocation for these funding sources. Revenue for 2016-2020 is based on current TIP figures, and revenue for 2021-2045 is based on average annual obligation from 2013-2015 and inflated 3% per year.

Total Federal = 467,302.7

[%] Average of FY 2011 to 2015 Road Impact Fees

Annual Federal = 15,576.8

[$] Missoula Redevelopment Agency Urban Renewal District Tax Increment Funds avearge of FY 2011 to 2015 transportation related infrastructure expenditures, including sidewalks, trails, roads, etc.

† Federal allocation only. Local match reflected in the Mill Levy and Passenger Revenue lines below. This also applies to CMAQ for any Mountain Line projects and local match, but the amount varies and does not substantively change the total.

[#] MUTD Other revenue includes fares, sponsorships, advertising, etc.

All funding received a 3% inflation increase every five years.

Appendix E: Air Quality Conformity

ACTIVATE
MISSOULA 2045

Missoula MPO
Air Quality Conformity Analysis

Missoula, Montana

Draft - March 2017

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INTRODUCTION

The *2016 Missoula Long Range Transportation Plan* (LRTP or "Plan") is required to demonstrate conformity with air quality regulations as reported in this Plan Document. The following elements in this appendix of the LRTP establish conformity:

- Conformity Determination
- Documentation of Conformity Process
- Transportation Modeling and Data supporting Conformity
- Emissions Modeling and Data supporting Conformity

Because different areas were used to model the carbon monoxide (CO) and particulate matter (matter less than or equal to 10 microns in aerodynamic diameter, also known as PM_{10}), the vehicle miles traveled (VMT) totals used to determine conformity are not comparable; the VMT with the CO area cannot be compared to the VMT within the PM_{10} area. Figure 1 shows the CO maintenance area and PM_{10} non-attainment area that were assumed in the analysis. Output from the air quality modeling supporting the conformity determination was provided to the Metropolitan Planning Organization (MPO) in electronic format. These analyses are understood to apply to the full set of projects as represented in Appendix B, with travel model results.

CONFORMITY DETERMINATION

The LRTP goals reflect planning factors outlined in Fixing America's Surface Transportation Act (FAST Act), which was signed into effect on December 4, 2015. The goals guide the development of the projects, priorities and supporting policies of the LRTP Update.

The policies required to achieve many of the LRTP goals do not involve projects in the LRTP itself. Supporting policies and plans such as the *Missoula Growth Policy*, the 2011 *Missoula Active Transportation Plan*, the 2012 Mountain Line *Comprehensive Operational Analysis*, the *Montana Comprehensive Highway Safety Plan*, and the *Missoula Greater Downtown Master Plan* will also play important roles in realizing the vision developed during the LRTP Update process.

An emissions analysis of the Recommended Projects listed in the Chapter titled "Our Transportation Future" shows that the Plan conforms to the emissions budgets for CO and PM_{10}. The VMT data were obtained in the form of Highway Performance Monitoring System (HPMS) data by arterial type for the base year 2015. The VMT data were disaggregated by arterial and vehicle classification using 2012 HPMS VMT data. Speed estimates from the travel model were used for CO and PM_{10} boundary areas and for the years 2015 and 2045. Values for other years were estimated by linear interpolation for this analysis.

Carbon monoxide emissions were determined using the U.S. Environmental Protection Agency's (EPA) MOVES 2014a (Motor Vehicle Emission Simulator model), the latest version of MOVES available. Total emissions (inventory analysis) were estimated using MOVES instead of deriving emission rates. Particulate matter emissions from tailpipes, tire wear, and brake wear were also determined using the MOVES 2014a model. Rates for road dust sources of particulate emissions were estimated using the procedures defined in the EPA publication AP-42 Chapter 13.2.1 (January 2011). The equation used in the estimation of re-entrained PM_{10} dust emission rates is same as the equation used in the development of budgets for the region. This equation was derived from EPA publication AP-42 Chapter 13.2.1 (January 1995) but also includes all the updates identified through November, 2006 version of AP-42. This approach was used in the estimation of PM_{10} emissions to perform a consistent comparison between the budgets and emissions.

Figure 1: Missoula Non-attainment and Maintenance Area Map

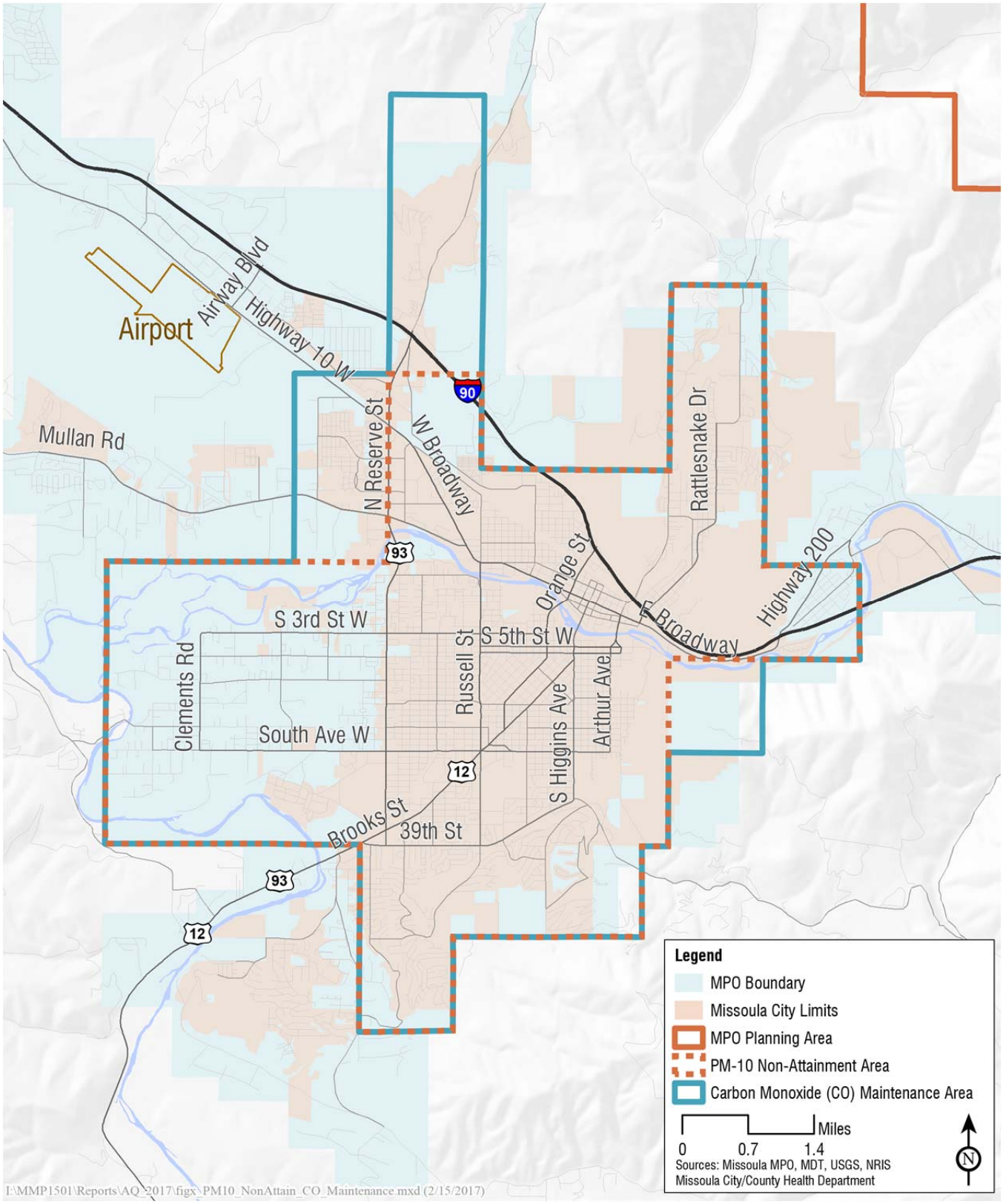


Table 1: CO Conformity Determination for Missoula, 2016 LRTP

Year	2015	2025	2035	2045
Budget (tons/day)	43.22	42.67	42.67	42.67
Seasonal Vehicle Miles Traveled	950,155	1,092,040	1,233,925	1,375,810
Projection (tons/day)	34.69	21.39	10.81	8.31
Conformity (Projection < Budget?)	Pass	Pass	Pass	Pass

Table 2: PM_{10} Area Conformity Determination for Missoula, 2016 LRTP

Year	2015	2025	2035	2045
Budget (lbs/day)*	16,119	16,119	16,119	16,119
Seasonal Vehicle Miles Traveled	832,653	947,672	1,062,691	1,177,710
Road Dust rate (grams/mile)	4.5399	4.5154	4.4962	4.4807
Projection: Tailpipe Particulates (lbs/day)				
Gpm +Ec + Oc (gasoline particulates + diesel elemental carbon + diesel organic carbon)	645	185	89	68
Pbr (brake particulates)	483	552	622	694
Pti (tire wear particulates)	34	38	43	48
Total Tailpipe Particulates (lbs/day)	1,162	775	754	810
Projection: Road Dust Particulates (lbs/day) **				
Deicer Areas	5,689	6,501	7,313	8,125
Washed Sand Area	1,717	1,951	2,184	2,417
Unwashed Sand Area	929	984	1,039	1,094
Total Road dust Particulates (lbs/day)	**8,336**	**9,436**	**10,536**	**11,636**
Total Particulates (lbs/day)	**9,498**	**10,211**	**11,290**	**12,446**
Conformity (Projection < Budget?)	**Pass**	**Pass**	**Pass**	**Pass**

** Includes road dust, elemental carbon, organic carbon, gasoline exhaust particulates, tire wear, and brake wear.*
*** Projection = Emission Rate × Seasonal Vehicle Miles Traveled, then divide by 453.5 to convert to pounds*
Note: Calculations in the above table may include rounding of values

Carbon Monoxide Conformity

Table 1 demonstrates conformity with the motor vehicle emission budgets for Missoula carbon monoxide. The emission budgets for Missoula carbon monoxide approved by the EPA in the June 1, 2006, *Federal Register Notice,* Vol. 71, No. 105 on pages 31181–31182. The 2006 *Federal Register Notice* lists the budgets only until 2021 and same budget was used for the horizon years 2035 and 2045 to demonstrate conformity. This is because the plan must demonstrate conformity to the last year in a maintenance plan that has the Motor Vehicle Emissions Budgets (MVEB). EPA also concurs with this assumption. The CO projections (tons/day) are less than budgets for 2015, 2025, 2035, and 2045.

Improved emissions standards for automobiles (implemented in 2004) and heavy duty trucks (implemented in 2007) will result in reduced CO emission rates in the future. As older vehicles are retired and replaced with new vehicles with lower emission rates, net vehicle emissions of CO will be lower in the future than they are today.

Particulate Matter Conformity

Table 2 demonstrates Missoula's conformity with the motor vehicle emissions budgets for PM_{10}. The EPA gave initial approval of the Missoula PM_{10} nonattainment plan *State Implementation Plan* (SIP) submittal on January 18, 1994 (see Federal Register Vol. 59-2537). This approval contained the emissions inventory data from which the Missoula PM_{10} budget of 16,119 pounds per

day was derived. The EPA gave a subsequent SIP approval of additional materials submitted by Montana, for the Missoula PM_{10} nonattainment area, on December 13, 1994 (see Federal Register Vol. 59-64133) and the EPA gave final approval of the remaining elements of the Missoula PM_{10} nonattainment plan SIP revision on August 30, 1995 (see Federal Register Vol. 60–45051). The Missoula PM_{10} budget of 16,119 pounds per day was also documented on page 1 of the June 2004 *PM_{10} Emissions Budget for Missoula, Montana, Montana Transportation Conformity Report* by James Carlin. Budget for PM_{10} has not been updated as a part of this conformity analysis similar to CO.

PM_{10} emissions in Missoula are predominantly from re-entrained road dust. Road dust emissions are sensitive to the type of anti-skid treatment method used for winter driving conditions since the anti-skid material directly affects the amount of silt on the road surface that is present for re-entrainment. Roads treated with a chemical deicer solution have the lowest road dust emission rates, followed by roads treated with washed sand. Roads treated with unwashed sand have the highest road dust emission rates of the three types of anti-skid treatments used on roads in Missoula.

The projected total PM_{10} (lbs/day) is less than the 2015, 2025, 2035, and 2045 budgets. Previous LRTPs were brought into conformity by switching some of the unwashed sand treated areas to washed sand. Improved model validation and trend of vehicle VMT reduction has helped in achieving conformity for this LRTP without any additional recommendations.

Table 3: AP-42 Dust Rates for Missoula, 2016 LRTP PM_{10}

AP-42 Dust Rates $E = [7.3 \times (sL/2)^{0.65} \times (W/3)^{1.5} - C] \times [1- P/(4 \times 365)]$					
	sL= Silt Load (g/m^2) [a]	**W= Vehicle Weight (tons)**	**C= Exhaust Brake & Tire (g/VMT)**	**P= Precipitation Days**	**E= Dust Emission Factor (g/VMT)**
Deicer & Sweeping Conditions					
Freeway	0.10	3.22	0.21190	0	0.94380
Principal	1.82	2.32	0.21190	0	4.44655
Minor	1.82	2.30	0.21190	0	4.38842
Collector	2.14	2.27	0.21190	0	4.82271
Local	2.38	2.21	0.21190	0	4.96449
Washed Sand Only Conditions					
Freeway	0.10	3.22	0.21190	0	0.94380
Principal	5.80	2.32	0.21190	0	9.68328
Minor	5.80	2.30	0.21190	0	9.55979
Collector	3.80	2.27	0.21190	0	7.10043
Local	6.30	2.21	0.21190	0	9.53404
Unwashed Sand Only Conditions [b]					
Freeway	NA	NA	NA	NA	1.47468
Principal	NA	NA	NA	NA	15.13012
Minor	NA	NA	NA	NA	14.93717
Collector	NA	NA	NA	NA	11.09442
Local	NA	NA	NA	NA	14.89693

[a] PM_{10} Emissions Budget for Missoula, Montana, Transportation Conformity, June 2004, p.5
[b] Washed Sand factor divided by (1-0.36), Missoula PM_{10} Conformity 2008, p.4
Note: Calculations in the above table may include rounding of values

Paved road dust emission rates are calculated using EPA procedures given in the publication "AP-42, Chapter 13.2.1." Table 3 summarizes these emission rate calculations. Road dust emission rates are a function of the silt load on the road surface and the average weight of vehicles traveling the road. Precipitation days "P" in the road dust emission rate formula in Table 3 was set to zero to be consistent with the road dust calculations used to establish the Missoula PM_{10} budget for motor vehicles.

CONFORMITY PROCESS

This report summarizes the conformity analysis of the 2016 LRTP with the emissions requirements of the Montana SIP. This conformity analysis is subject to public and agency review, and requires the concurrence of the Federal Highway Administration and Federal Transit Administration.

Missoula is designated as a maintenance area for CO and a non-attainment area PM_{10}. Previously referenced Figure 1 depicts the maintenance and non-attainment areas.

LATEST EMISSIONS MODEL

The conformity analysis presented in this document is based on the EPA-approved MOVES 2014a mobile source emission model for tailpipe emissions and EPA-approved methods for estimating road dust emissions found in the document AP-42 Section 13.2.1 (January 2011 Update). The application of these models will be discussed in greater detail later in this chapter.

TRAVEL DEMAND MODELING

Travel demand modeling of the transportation system was done using the 2015 Missoula MPO's travel model as described in Appendix F. Tables 4 and 5 display the estimates of HPMS VMT based on the travel model results. As the VMT data used in the process reflect the traffic counts, no adjustments were deemed necessary. The travel model provides current and future estimates of VMT and travel speeds for each classification of roadway: freeways, principal arterials, minor arterials, collectors, and local streets. Tables 4 and 5 show the weekday VMT estimate for the Missoula CO and PM_{10} areas, respectively. The weekday VMT estimate is different for CO and PM_{10} because the areas for each are different, as demonstrated by previously referenced Figure 1.

Since fugitive paved road dust emissions vary by type of anti-skid treatment applied to the road surface during winter driving conditions (chemical deicer, washed sand, or unwashed sand), the PM_{10} area VMT is tallied by anti-skid treatment area as well as facility type. The travel model estimates of VMT were prepared for model years 2015 and 2045 and the growth rate between the base and forecast years was applied to the HPMS data to arrive at forecast VMT for the region. The VMT estimates for intervening years (2025, and 2035) were derived by linear interpolation of the VMT results for 2015 and 2045.

Table 4: Seasonal Weekday VMT Estimate – CO Area

Facility	2015	2025	2035	2045
Freeway	226,207	259,986	293,765	327,544
Principal	345,920	397,576	449,231	500,887
Minor	99,095	113,893	128,691	143,489
Collector	96,026	110,366	124,705	139,045
Local	182,906	210,219	237,532	264,846
Total	**950,155**	**1,092,040**	**1,233,925**	**1,375,810**

Note: Calculations in the above table may include rounding of values

Table 5: Seasonal Weekday VMT Estimate – PM_{10} Area

Facility	2015	2025	2035	2045
Deicer Area				
Freeway	164,036	187,449	210,862	234,274
Principal	250,848	286,651	322,454	358,258
Minor	71,860	82,117	92,373	102,630
Collector	69,635	79,573	89,512	99,451
Local	132,637	151,568	170,499	189,430
Washed Sand Area				
Freeway	25,400	28,849	32,299	35,749
Principal	38,842	44,117	49,393	54,669
Minor	11,127	12,638	14,150	15,661
Collector	10,782	12,247	13,711	15,176
Local	20,538	23,327	26,117	28,906
Unwashed Sand Area				
Freeway	8,797	9,317	9,837	10,358
Principal	13,452	14,248	15,044	15,839
Minor	3,854	4,082	4,310	4,537
Collector	3,734	3,955	4,176	4,397
Local	7,113	7,534	7,954	8,375
Total VMT				
Freeway	198,233	225,616	252,998	280,381
Principal	303,142	345,016	386,891	428,765
Minor	86,841	98,837	110,832	122,828
Collector	84,151	95,775	107,400	119,024
Local	160,287	182,428	204,570	226,711
Total	**832,653**	**947,672**	**1,062,691**	**1,177,710**

Note: Calculations in the above table may include rounding of values

EMISSION MODELING AND SUPPORTING DATA

MOVES 2014a Inputs

Most of the required MOVES inputs were based on the 2012 conformity data and were updated to reflect local 2015 existing conditions. These inputs are summarized below. The complete MOVES run specification file used for this analysis was provided to the MPO in digital format.

VMT Mix

(HPMSVTypeDay Data)

The VMT mix describes how much a particular vehicle type travels on public roads. Total VMT by the 6 HPMS vehicle types is the required input for both CO and PM_{10} areas. The HPMS VMT mix was obtained for the County by arterial type from the Montana Department of Transportation for 2015. The VMT was disaggregated by vehicle classification based on the 2012 distributions. For forecast years, growth in VMT from the travel model was used to extrapolate the HPMS VMT at county level. As the HPMS VMT mix was available for the County, VMT for CO and PM_{10} areas was computed using the distribution of VMT between the areas and the County. A constant distribution of VMT, same as the base year, was assumed for the forecast years by vehicle types. Total VMT by roadway functional classification was provided by MDT.

Vehicle Registration Distribution

(SourceTypeAgeDistribution & SourceTypePopulation)

Missoula County vehicle registration data for the year 2015 were used for the vehicle age profile and source population for MOVES. In order to estimate the number of vehicles by MOVES vehicle types, common vehicle types from the registration database and MOVES vehicle types were identified. Only two categories, passenger cars and motorcycles, were found common between MOVES and registration data. Vehicle weight and fuel type were also available from the database. Four different weights were recorded in the database: Gross Vehicle Weight (GVW), Gross Curb Weight (GCW), Vehicle Weight, and Declared Gross Vehicle Weight (DGVW). Only certain groups of weight data were available for different vehicles. Vehicles were grouped into 16 MOBILE6 categories based on the maximum available weights. They were further divided into 28 vehicle categories based on the fuel type and 16 MOBILE6 categories. Once the vehicle data from the database were grouped into the 28 vehicle categories based on maximum available weight and fuel type, they were disaggregated into MOVES vehicle types using data from the vehicle converter spreadsheet available on the EPA's website.

The registration database contained the model year for each vehicle in the database. Data were grouped by age into the MOBILE6 vehicle categories. The converter spreadsheet was used to convert the age distribution from MOBILE6 format to MOVES format. The database used in the conversion process was provided to MPO.

The registration data were geocoded based on the addresses available in the database. The geocoded information was used to identify the age distribution and vehicle population separately for the CO and PM_{10} areas.

Meteorological Data

(zoneMonthHour)

MOVES requires temperature and relative humidity by hour and by month as inputs. Information from the Mobile 6.2 inputs was converted using the EPA's conversion tools. Minimum temperature (25.1°F), maximum temperature (44.3°F), and absolute humidity (20%) for the month of January, from the previous Mobile 6.2 inputs were used for the conversion process. The conversion spreadsheets are included in the dataset provided to the MPO.

Fuel Data

(FuelSupply & FuelFormulation)

Share of different fuels and their formulations used in the region is an input for MOVES. To this extent, information about quantities (number of gallons) of fuel by type and by month for 2015 was provided by DEQ. Two fuel subtypes are currently being used in the region, gasoline and diesel. Gasoline fuels were subdivided into gasoline and reformulated gasoline with ethanol. For diesel, even though information was available for three different categories, only one category was used in the MOVES input, which represents the average sulfur level for all three diesels, which was 15 ppm for the region.

Inspection and Maintenance Programs

(IMCoverage)

No Inspection and Maintenance (IM) programs are currently present or planned for the Missoula MPO. No IM credits or Anti-tampering programs are present in Missoula.

Vehicle Hours Traveled Distribution by Speed

(AverageSpeedDistribution)

The fraction of total Vehicle Hours Traveled (VHT) that occurs in each of 16 speed categories (i.e., speed bins) is a required input for MOVES. VHT data are also broken down by time of day, roadway type, and vehicle type. This information is available from the County's travel model as an output. Distribution of VHT by speed, time of day, and roadway classification is obtained from the travel model, whereas the distribution by vehicle type is assumed to be uniform for all the vehicle types.

Vehicle Miles Traveled Distribution by Time of Day

(HourVMTFraction)

The fraction of total VMT that occurs by hour on a typical weekday is an input for MOVES. VMT by time of day is also available from the travel model. VMT is further broken down by roadway facility type and vehicle types. VMT is available by time of day and facility type. It is assumed to be uniform for all the vehicle types, as is the VHT distribution.

Vehicle Weights

Mean vehicle weight by facility type is one of the inputs required to determine road dust emissions rates using the AP-42 method recommended by the EPA. Mean vehicle weight by facility is calculated as the sum of the products of vehicle type percentage for a given facility and the mean vehicle weight, respectively, for each of the 16 vehicle types used in MOBILE6. As no new data were available to determine the VMT mix by the 16 MOBILE 6 vehicle categories, mean vehicle weight data from the 2008 conformity analysis were used.

CONCLUSION

Through travel demand and emissions modeling, the *2016 Missoula Long Range Transportation Plan* is found to be in conformity with air quality standards with respect to all pollutants.

Appendix F: Travel Demand Model

I. INTRODUCTION

The Missoula MPO recently updated its Long Range Transportation Plan (LRTP) (ACTIVATE Missoula 2045). As a part of the 2045 LRTP development, the MPO's travel model was updated as well. The trip based travel model was initially developed in 2010 using Caliper's TransCAD 5.0 and was calibrated and validated to 2010 base year. The MPO travel model includes both Missoula and Ravalli counties as the modeling area. During this model update, the model was upgraded to TransCAD 7.0 (Build 12205) and was validated to a base year of 2015. The Missoula MPO provided input data and validation data such as traffic counts and transit boarding reflecting 2014 ground conditions. No inputs or changes were conducted in Ravalli County as there was no growth in that time period. Even though the model inputs reflected 2014 conditions, the base year for the model was referred to 2015 as there were no significant differences between 2014 and 2015 in the modeling area. The model update effort also included development of 2045 socioeconomic data for the LRTP purposes. The structure of the travel model or the model components have not been modified for this update. The model refresh included modification of inputs, and calibration of model parameters for validation. This technical memorandum identifies only the changes that were conducted as a part of the 2015 validation. However the model structure and component details can be obtained from the 2010 model documentation.

II. ROADWAY NETWORK

The TransCAD roadway network from the 2010 model is a legacy network which contains multiple scenarios in the same geographic file. The 2015 network was developed using the existing and committed network from the 2010 model. The existing and committed improvements from the 2010 network were reviewed by the MPO and appropriate changes were incorporated to develop the base year network. The following roadway network map identifies the network changes between 2010 and 2015. It should be noted that the map only includes changes that would affect the model such as roadway widening, construction of new roads, or closure of a road, etc.

Traffic counts were obtained from the MPO and Montana Department of Transportation (MDT) and were included on the roadway network for model validation purpose.

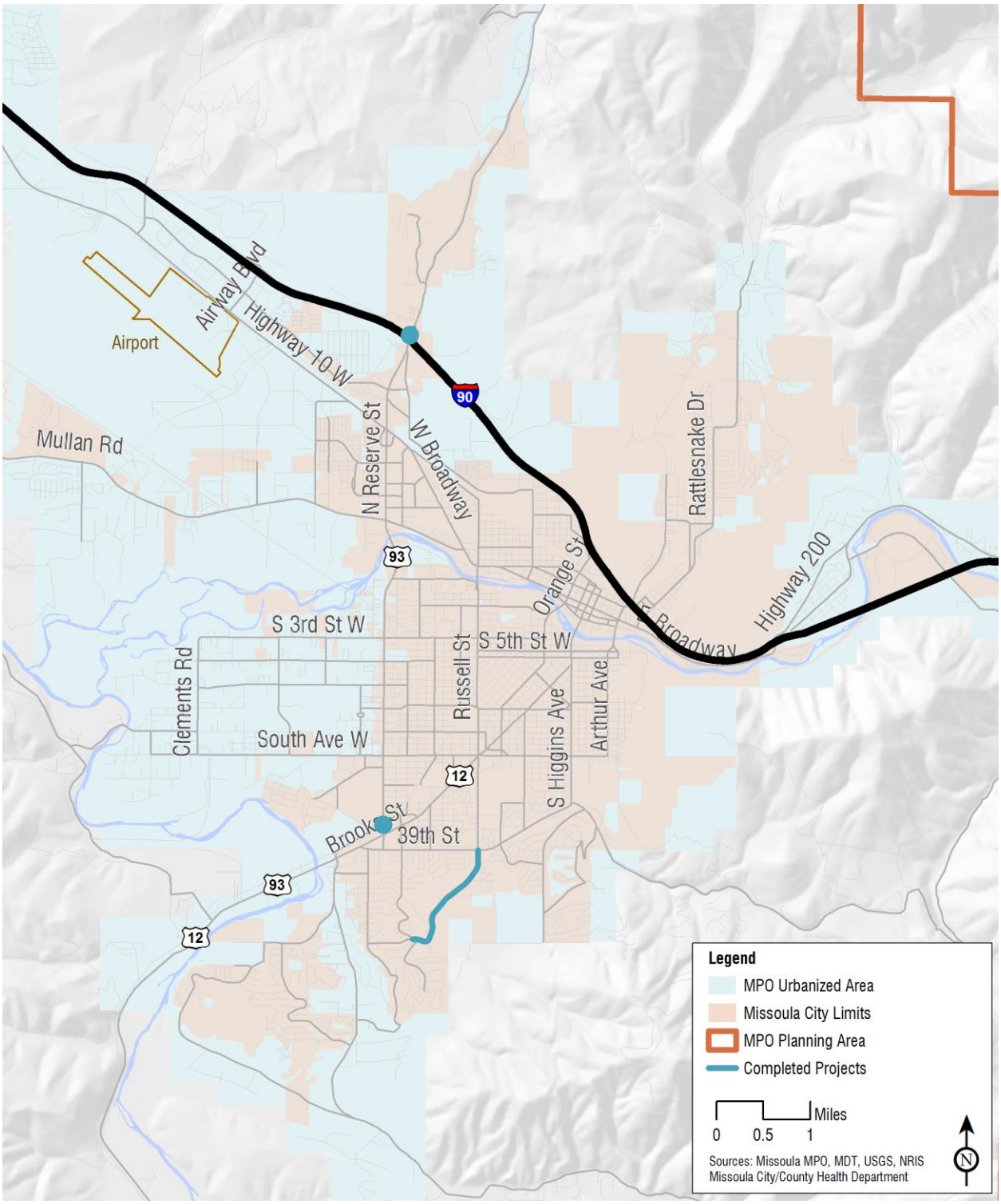
III. TRANSIT NETWORK AND NON-MOTORIZED NETWORKS

The Missoula MPO Model uses information stored on the roadway network layer and a TransCAD route system to represent the transit and non-motorized networks. For non-motorized path building, a bicycle and pedestrian scoring system represents the varying levels of facility quality. For transit path building, the Missoula MPO model uses the "Pathfinder" method provided in the TransCAD software. The travel model uses transit and non-motorized networks to build shortest paths between each zone pair for pedestrian, bicycle, and transit trips. The resulting shortest paths are used along with paths built for vehicle trips as inputs to the mode choice model.

Transit Route System

Transit routes and stops are represented within the TransCAD route system. No changes were proposed to the route system attributes during this model update. Mountain Line provided GIS shape files of the 2015 routes and stops along with their schedules. Transit route alignments, stop locations, and peak and off-peak headways have been updated to reflect the existing conditions for 2015. The headway for each transit route is calculated separately for the peak and off-peak time periods. As discussed in the Trip Assignment chapter of the original

Figure 1: 2015 Roadway Network Map with Completed Improvements



2010 model documentation, the peak time period includes 7:00 AM through 8:00 AM and 5:00 PM through 6:00 PM. For the transit system, Headway is defined as the average headway for all busses starting a route within 15 minutes of the peak period. Similarly, off-peak headway is calculated as the average headway for all remaining busses. Updated 2015 headway assumptions are listed in Table 1. These changes also included changes in route alignments and headways for the University of Montana (UM) transit systems as well.

During the 2015 model update, Mountain Line was in the process of a pilot study of Zero Fare across all of its system where the riders can use transit for free. The duration of the pilot was estimated to be for 3 years. Since the purpose of a travel model is for planning forecast conditions and due to uncertainty of this program, it was decided not to include this change in the travel model.

Table 1: 2015 Route Headway Assumptions

Mountain Line Route	Peak Headway (minutes)	Off-peak Headway (minutes)
Route 1	15	15
Route 2	15	15
Route 3	30	30
Route 4	60	60
Route 5	60	60
Route 6	30	30
Route 7	30	60
Route 8	60	60
Route 9	60	60
Route 11	60	120
Route 12	30	60
Route 14	60	60
Red Line	10	10
Purple Line	30	30
Blue Line	15	15
East Broadway Park and Ride	20	20

Non-motorized Network

The Missoula MPO Model roadway network includes attributes that describe the presence and quality of non-motorized facilities on roadway links within the MPO. In addition, multi-use paths are included in the roadway network file to allow inclusion of these facilities in the non-motorized path building process. Non-motorized paths are used to build non-motorized shortest paths for use in Mode Choice. The non-motorized network was also updated to 2015 conditions. Majority of changes to the non-motorized network involved inclusion of recently built off-street trails or improvements to the existing trails e.g., Bitterroot trail, as well as new on-street bike facilities. The scoring system that was used in 2010, to rate the travel utility and attractiveness of a non-motorized facility has been retained without any changes during this model refresh.

IV. TRIP GENERATION

Traffic Analysis Zones

Traffic analysis zones (TAZs) are small areas containing the land use data that is used as the foundation for trip-making in the travel model. For the Missoula MPO Model, the TAZ layer is identical to the 2000 Census block geography which was established as a part of the 2010 update. No changes were proposed to the TAZ structure due to the level of detail already available in the 2010 TAZ structure.

2015 Socioeconomic Data

The calibration and validation of the MPO travel model to 2015 base year requires 2015 estimates of household and employment data. Since 2015 data was not readily available due to the project time line, data from 2014 was used. Updated household and employment data was available for Missoula County whereas growth was interpolated for Ravalli County based on the 2010–2040 household data.

Missoula MPO provided the 2014 household data in GIS polygon format and included the number of dwelling units which was aggregated to the model TAZs. Dwelling unit

information as converted to household data using occupancy rates. Various quality control checks were conducted to the household data for reasonableness, such as comparing the 2014 household data to 2010 data at a TAZ level, 2014 ACS data, and also by reviewing the annual growth rates by TAZ.

2014 Employment data was provided by the MDT as a GIS point layer. The employment data contained North American Industry Classification System (NAICS) code which was used to classify the employment into modeling categories. This approach is consistent with the 2010 employment data development efforts. The employment data by employment type was aggregated to TAZs and multiple quality control checks similar to household checks were conducted to verify the reasonableness of the 2014 employment data.

Separate maps were created to illustrate the household and employment changes between 2010 and 2014. The maps were reviewed in detail with MPO for locations where the changes seemed questionable. Household and employment for 2014 was modified appropriately based on information from the MPO to establish the base year household and employment data for the model.

The trip generation model also includes average household size and income for each TAZ to determine the general trip making characteristics of a household. The average household size and income has been obtained from US Census data during the 2010 model development. The model uses household disaggregation models to estimate the univariate distribution of households by size and by income group for each TAZ. Once these distributions have been estimated, the model uses an iterative proportional factoring process to develop bivariate distributions of households by income and size for each TAZ. Since this data is available from the Decennial census data at a block level and not available from the ACS data, no modifications were made to the univariate or bivariate distributions of household size and income. The average household size from 2010 was used with the number of households to estimate the total population of the county which was confirmed with ACS population data as a reasonableness check.

Table 2: 2010 and 2015 Household and Employment by County

County	Socioeconomic Data Variable	2010	2015	Growth
Missoula County	Households	39,847	40,537	2%
	Population	92,158	96,245	4%
	Retail Employment	8,839	9,955	13%
	Service Employment	20,684	21,800	5%
	Basic/Production Employment	13,536	12,069	-11%
	Educational Employment	5,204	4,774	-8%
	Healthcare Employment	10,274	11,457	12%
	Leisure/Hospitality Employment	7,670	9,155	19%
Ravalli County	Households	22,975	24,438	6%
	Population	55,050	58,197	6%
	Retail Employment	3,185	2,920	-8%
	Service Employment	7,146	6,555	-8%
	Basic/Production Employment	8,336	5,741	-31%
	Educational Employment	1,699	1,718	1%
	Healthcare Employment	2,257	2,302	2%
	Leisure/Hospitality Employment	2,395	2,608	9%

Production Rates

Trip purpose is used in travel models to categorize various types of household-based trips that have similar characteristics, such as location of production or attraction end, trip length, auto occupancy, and others. The 2010 travel model consisted of the following 6 trip purposes

- Home-Based Work (HBW): Commute trips between home and work and vice versa (e.g., includes trips between work and home).
- Home-Based Shop (HBS): Trips between home and shopping locations for the purpose of shopping.
- Home-Based University (HBU): Trips between home and the university campus for school related purposes by people not employed by the University (i.e., students and visitors).
- Home-Based Other (HBO): All other trips that have one end at home. These can include trips between home and appointment, home and recreation, etc.
- Work-Based Other (WBO): Work-related trips without an end at home.
- Other-Based Other (OBO): Trips with neither an end at home nor a work-related purpose.

All of the trip purposes were retained for this model update and no modifications were proposed.

2010 Missoula model used a bivariate trip production model with household size and income as the two variables. Production rates from 2010 model were used as an initial estimate and the production rates were adjusted during the 2015 model validation to represent the trip activity (traffic counts) in the region.

Attraction Rates

Attraction rates are used to identify the ends of trips that occur at locations other than the trip-maker's home. For home-based trips, the attraction end of a trip occurs at a non-residential location, or occasionally at another person's home. For WBO trips, trip productions occur at the trip maker's workplace and the trip attraction occurs at the non-work end of the trip. For OBO trips, the trip production and attraction are synonymous with trip origin and destination. For non-home-based trip purposes, allocation models and special procedures are used to properly locate the production and attraction end of each trip. Similar to production rates, attraction rates from 2010 model were used as an initial estimate but adjusted during model validation.

Special Generator

Missoula is home to the University of Montana (UM) which was represented as a Special Generator in the 2010 model due to its unique trip patterns with a majority of students living on the campus. The travel model uses a production allocation model to represent the geographical distribution of the trips made by the university students. The special generator inputs include the student enrollment and the total number of employees at the university which determine the magnitude of university trips whereas the student address information was used in the calibration of the production allocation model mentioned earlier.

Missoula MPO obtained the enrollment data, employment data, and student addresses from the University of Montana. The 2014 enrollment and employment data suggested a decrease from 2010 values which were confirmed by both the University and the MPO. The special generator values in the model were updated to represent 2014 data.

Table 3: 2015 Trip Production Rates

Trip Purpose	Household Income	Household Size				
		1	2	3	4	5+
HBW	Low Income ($0 - $19,999)	0.41	0.74	1.49	1.49	1.49
	Medium Income ($20,000 - $74,999)	0.95	2.62	2.28	2.57	3.45
	High Income ($75,000 -more)	1.07	2.62	3.03	2.51	3.37
HBO	Low Income ($0 - $19,999)	1.39	1.90	4.09	5.53	9.98
	Medium Income ($20,000 - $74,999)	1.39	2.03	4.39	7.53	9.91
	High Income ($75,000 -more)	1.61	2.16	5.49	8.17	17.01
HBS	Low Income ($0 - $19,999)	0.49	1.28	1.40	1.40	1.40
	Medium Income ($20,000 - $74,999)	0.61	1.61	0.86	1.71	1.71
	High Income ($75,000 -more)	0.80	1.61	1.25	1.70	1.70
OBO	Low Income ($0 - $19,999)	1.43	1.43	2.09	2.09	2.09
	Medium Income ($20,000 - $74,999)	1.29	1.54	2.75	4.15	4.15
	High Income ($75,000 -more)	1.29	1.53	3.17	4.70	4.70
WBO	Low Income ($0 - $19,999)	0.31	0.59	0.69	0.69	0.69
	Medium Income ($20,000 - $74,999)	0.52	0.65	1.10	1.10	1.10
	High Income ($75,000 -more)	0.91	1.14	1.20	1.58	1.64
HBU	Low Income ($0 - $19,999)	0.86	0.86	0.86	0.86	0.86
	Medium Income ($20,000 - $74,999)	0.86	0.86	0.86	0.86	0.86
	High Income ($75,000 -more)	0.86	0.86	0.86	0.86	0.86

Table 4: 2015 Trip Attraction Rates

Socioeconomic Variable	HBW	HBS	HBO	WBO	OBO	HBU	WBO_PA
Basic Employees	1.41	0.01	0.23	0.05	0.13	0	0.80
Retail Employees	1.15	2.59	2.25	1.77	5.60	0	0.54
Service Employees	1.20	0.05	1.40	0.27	0.69	0	1.01
Education Employees	1.16	0.36	12.84	0.91	3.03	0	0.88
Health Employees	1.06	0.01	2.43	0.40	0.96	0	0.74
Leisure Employees	0.99	1.91	1.11	2.02	2.87	0	0.38
Total Households	0.00	0.01	0.53	0.08	0.29	0	0.00

No changes were suggested to the university allocation model parameters as a review and comparison of the student address information with 2010 data did not reveal significant differences in spatial distribution.

Table 5: UM Employment and Enrollment

Faculty	771
Staff	1,300
Total Faculty and Staff	2,071
On-Campus Students	3,730
Off-Campus Students	9,628
Total Enrollment	13,358

External Trips

In addition to the internal-internal trips that occur entirely within the modeling area, the model must include external travel from outside of the region. Trips with one end inside the modeling area and the other outside of the area are called Internal-External (IE) and External-Internal (EI) trips. Through trips, or External-External (EE) trips, are those that pass through the modeling area without stopping (or with only short convenience stops).

External travel is modeled explicitly at the external stations where roadways cross the model boundary. The seven (7) external stations in the MPO model are consistent with the 2010 travel model. The external trips were determined using the 2014 traffic counts at these external stations which were obtained from the MDT. IE/EI and EE volumes were developed using the 2014 traffic counts and an approach consistent to the 2010 approach.

Sub-Region Trip Rate Factors

During the model validation in 2010, sub-region trip rate factors were used to properly represent the differences in trip making characteristics between different jurisdictions of the modeling area. 2010 trip rate factors were updated to the following values during the 2015 model validation.

Table 6: 2015 University Special Generator Values

Trip Purpose	Trip Rate	Unit	Initial Special Generator Value
HBW Productions	0.22	On Campus Students	821
HBW Attractions	1.6	FTE Employment	3,314
HBS Productions	0.2	On Campus Students	746
HBS Attractions	n/a	n/a	0
HBU Productions	n/a	n/a	0
HBU Attractions	3.8	Off Campus Student	36,586
HBO Productions	0.5	On Campus Students	1,865
HBO Attractions	n/a	n/a	0
WBO Production	0.37	FTE Employment	766
WBO Attractions	0.19	Off Campus Student	1,829
OBO Productions	0.25	Off Campus Student	2,407
OBO Attractions	0.25	Off Campus Student	2,407

Table 7: 2014 External Travel Assumptions

External Station	Location	Total Volume	% EE	% IE/EI	EE Trips	IE/EI Trips
5001	Hwy 93 S	540	6%	94%	31	509
5002	I-90 East	8,190	48%	52%	3,961	4,229
5003	I-90 West	7,120	48%	52%	3,434	3,686
5004	Hwy 93 N	7,370	7%	93%	485	6,885
5005	Hwy 200 E	2,540	6%	94%	153	2,387
5006	Hwy 83 N	1,020	0%	100%	0	1,020
5007	Hwy 12 W	790	6%	94%	46	744

Table 8: 2014 24-hour EE Trip Table

		5001 Hwy 93 S	5002 I-90 East	5003 I-90 West	5004 Hwy 93 N	5005 Hwy 200 E	5007 Hwy 12 W	TOTAL
5001	Hwy 93 S	0	0	0	0	16	0	**16**
5002	I-90 East	0	0	1,660	243	0	21	**1,924**
5003	I-90 West	0	1,709	0	0	59	0	**1,768**
5004	Hwy 93 N	0	250	0	0	0	0	**250**
5005	Hwy 200 E	16	0	57	0	0	1	**74**
5007	Hwy 12 W	0	22	0	0	2	0	**24**
TOTAL		**16**	**1,980**	**1,717**	**243**	**76**	**23**	**4,055**

Table 9: Jurisdictional Trip Rate Factors

Subregion		HBW		HBS		HBU		HBO		WBO		OBO		WBO_PA
		P	A	P	A	P	A	P	A	P	A	P	A	
1	CBD	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Urban MPO	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Suburban MPO	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Rural MPO	0.64	0.75	0.64	0.64	1	1	0.64	0.64	0.75	0.64	0.75	0.64	0.75
5	Missoula County (Non-MPO)	0.61	1	0.61	0.61	1	1	0.61	0.61	1	0.61	1	0.61	0.61
6	Ravalli County	0.75	0.96	0.53	0.86	1	1	0.53	0.64	0.86	0.53	0.96	0.53	0.53
99	Regional Commercial	1	1	1	3.75	1	1	1	3.125	1	3.75	3.75	3.75	1

V. TRIP DISTRIBUTION

Trip distribution is the second phase of the traditional 4-step demand model. Trip distribution is the process through which balanced person trip productions and attractions from the trip generation model are apportioned among all zone pairs in the modeling domain by trip purpose. The resulting trip table matrix contains both intrazonal (e.g., trips that don't leave the zone) on the diagonal and interzonal trips in all other zone interchange cells for each trip purpose.

The Missoula MPO Model uses a standard gravity model equation and applies friction factors to represent the effects of impedance between zones. As the impedance (e.g., travel time, spatial separation) between zones increases, the number of trips between them will decrease as represented by a decreasing friction factor. The frictions factors for HBW trip purpose of the 2010 model were calibrated using reported work time from 2000 Census Transportation Planning Package and the friction factors for other trip purposes were calibrated on a pivot-point analysis using data from the Colorado North Front Range (NFR). During the 2015 model validation and calibration no new data was available in regards to the average trip times. Hence, the friction factors for all the trip purposes were calibrated to the 2010 model data.

Table 10: Friction Factor Gamma Parameters

Trip Purpose	Alpha	Beta	Gamma
HBW	1000	-0.301	0.096
HBS	1000	-0.776	0.205
HBO	1000	-0.776	0.205
HBU	1000	-0.776	0.205
WBO	1000	-0.550	0.200
OBO	1000	-0.900	0.300

VI. MODE CHOICE

The Missoula model produces and distributes all person trips including non-motorized, carpool, and transit trips. The mode choice model separates the resulting person trip tables into the drive alone, shared ride (i.e., carpool), transit (walk access and drive access), and non-motorized (bicycle and walk) modes. Information about transit routes and the quality of bicycle and pedestrian facilities provides important input to the mode choice model. The mode choice model also considers trip lengths produced by the gravity model, resulting in sensitivity to higher density and mixed use areas. Such areas will produce shorter trips which are more likely to be made using non-motorized modes.

The Missoula mode choice is a nested logit model and no modifications were conducted to the structure of this model. The 2010 Missoula mode choice component was calibrated to reproduce observed mode shares. The observed mode share for transit is based on the number of boardings from Mountain Line's Automatic Passenger Counts (APC) data whereas the non-motorized shares were obtained from the 2000 Census Transpiration Planning Package (CTPP). No observed data or data from Census was available for the 2015 model update. Mode share percentages from 2010 model update were used as targets for the calibration of mode choice. 2014 average daily transit boardings were provided by Mountain Line for transit calibration. The percentage distribution of transit trips by trip purpose were derived from the 2010 model. A similar approach was used for vehicle trips (Drive Alone, Shared Ride2, Shared Ride2+), bicycle and walk modes. No modifications were made to the auto occupancy rates from the 2010 model. However, the 2015 mode choice calibration involved changes to the alternative specific constants and did not involve any modifications to the mode choice coefficients, value of times, or any of the cost variables.

Table 11: 2015 Fixed Route Boardings

Route	Average Weekday Boardings
Mountain Line Route 1	542
Mountain Line Route 2	484
Mountain Line Route 3	67
Mountain Line Route 4	170
Mountain Line Route 5	84
Mountain Line Route 6	319
Mountain Line Route 7	255
Mountain Line Route 8	134
Mountain Line Route 9	67
Mountain Line Route 11	120
Mountain Line Route 12	292
Mountain Line Route 14	63
UM Transit - Red Line	1,342
UM Transit - Purple Line	500
UM Transit - Blue Line	789
UM East Broadway Park and Ride	500

Table 12: 2015 Transit Trip Targets

Transit Provider	Boardings	Boardings per Trip	Total Trips
Mountain Line	2,596	1.46	1,778
UM Transit	3,131	1	3,131
Total	**5,727**	**1.2**	**4,909**

VII. TRAFFIC ASSIGNMENT

The traffic assignment involves the time of day component where the vehicle trip tables are distributed into AM peak, PM peak, and off peak periods. The model uses time of day factors developed using the traffic count that is available. Time of day factors was developed during the 2010 model development. The time of day factors and the peak period definitions for the 2015 model were kept consistent with 2010.

No modifications were deemed necessary for assignment algorithms, closure criteria, or roadway volume delay parameters for the 2015 model update. The 2015 model also included the speed feedback procedure that was implemented during the 2010 model development. The speed feedback methodology and speed feedback convergence criteria remained same as well.

VIII. TRAFFIC ASSIGNMENT VALIDATION

Roadway volumes resulting from traffic assignment were compared against traffic count data. This process, called traffic assignment validation, ensures that the model is reasonably representing observed traffic patterns. Traffic count data was obtained from various sources and placed on the roadway network. Travel model results were then compared to traffic count data using a variety of techniques, including regional comparisons, screenline comparisons, and visual inspection of individual link data.

While the model should accurately represent the overall level of activity, it is also important to verify that the model has an acceptably low level of error on individual links. It is expected that the model will not perfectly reproduce count volumes on every link, but the level of error should be monitored.

The model validation for this update did not involve any changes to the structure of the model or its individual components but only modifications to the model parameters. The validation of the 2015 model included modifications to the free flow speed factors, trip generation rates, sub-region trip rate factors, gamma parameters for average trip time/length, and alternative specific constants. The following tables and figure show various validation checks or statistics that were used as a guideline for the model validation.

Table 13: 2015 Alternative Specific Constants

Trip Purpose	Drive Alone	Shared Ride	Walk to Transit	Drive to Transit	Walk	Bike
HBW	0	-1.948	-1.916	0	-0.586	-0.801
HBS	0	-0.206	-2.292	0	0.189	-1.695
HBU	0	-1.201	-0.101	-1.384	0.746	0.266
HBO	0	0.144	-2.090	0	2.046	-0.957
WBO	0	-1.737	-2.965	0	-0.177	-1.966
OBO	0	0.129	-2.845	0	0.443	-2.043

Table 14: 2014 Regional Activity Validation

Link Type	Number of Counts	Model Volume/Count Volume	Model VMT/Count VMT	Target
Freeway	12	21.1%	15.7%	+/- 10%
Principal Arterial	81	2.0%	9.0%	+/- 10%
Minor Arterial	71	-15.7%	-9.7%	+/- 15%
Collector	179	-19.2%	-18.5%	+/- 25%
Local	63	-16.2%	-16.4%	n/a
CBD	18	-8.2%	-12.0%	n/a
Urban	198	-9.8%	-9.8%	n/a
Suburban	132	3.1%	14.1%	n/a
Rural	61	18.1%	15.5%	n/a
Total	406	-4.90%	7.20%	+/- 5%

Table 15: 2014 VMT and VHT Totals

	VMT	VHT
Freeway	764,881	10,544
Principal Arterial	1,399,432	31,058
Minor Arterial	392,235	9,701
Collector	416,923	11,794
Local	602,602	19,219
CBD	**25,844**	**1,216**
Urban	**674,267**	**24,186**
Suburban	**820,016**	**19,750**
Rural	**2,207,856**	**42,787**
Total	**3,727,982**	**87,939**
Total per Household	57	1.4
Total per Person	24	0.6

Table 16: Model % Root Mean Square Error

	Number of Counts	%RMSE	Validation Target
Freeway	12	29.5%	30%
Principal Arterial	81	20.5%	40%
Minor Arterial	71	36.2%	40%
Collector	179	59.1%	n/a
Local	63	133.1%	n/a
CBD	18	40.8%	n/a
Urban	198	32.5%	n/a
Suburban	132	40.1%	n/a
Rural	61	49.9%	n/a
Total	**406**	**36.8%**	**40%**

Table 17: Root Mean Square Error by Volume Group

Low	High	Mid-Point	Number of Counts	% RMSE
0	5,000	2,500	242	74%
5,000	10,000	7,500	67	39%
10,000	20,000	15,000	69	30%
20,000	30,000	25,000	20	14%
30,000	40,000	35,000	11	5%
40,000	50,000	45,000	0	n/a

Figure 2: Model Count/Volume Comparison