

Montview Corridor Study Summary Report

City of Aurora, Colorado
October 1, 2015



ACKNOWLEDGEMENTS

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LIST OF FIGURES

Figure 1: Study Area	2
Figure 2: Bicycle Facilities	7
Figure 3: Pedestrian Facilities	8
Figure 4: Access Management	8
Figure 5: Context Map	16
Figure 6: Existing Zoning	17
Figure 7: Existing Montview Boulevard Section	18
Figure 8: Existing Montview Boulevard Plan	18
Figure 9: Preliminary Corridor Zones	19
Figure 10: Corridor Zones - West	20
Figure 11: Corridor Zones - East	21
Figure 12: 2014 Traffic Volumes	22
Figure 13: 2035 Traffic Projections	24
Figure 14: Commercial Zone Enhanced Existing - Section	28
Figure 15: Commercial Zone Enhanced Existing - Plan	28
Figure 16: Commercial Zone Enhanced Existing with Separated Bikeway - Section	29
Figure 17: Commercial Zone Enhanced Existing with Separated Bikeway - Plan	29
Figure 18: West Residential Zone Enhanced Existing with Separated Bikeway - Section	30
Figure 19: West Residential Zone Enhanced Existing with Separated Bikeway - Plan	30
Figure 21: West Residential Zone Mixed Bike and Pedestrian - Plan	31
Figure 20: West Residential Zone Mixed Bike and Pedestrian - Section	31
Figure 22: East Residential Zone Buffered Bicycle Lane - Section	32
Figure 23: East Residential Zone Buffered Bicycle Lane - Plan	32
Figure 25: East Residential Zone Road Diet with Separated Bikeway - Plan	33
Figure 24: East Residential Zone Road Diet with Separated Bikeway - Section	33
Figure 26: Corridor Zones and Preferred Cross Section - West of Havana	34
Figure 27: Corridor Zones and Preferred Cross Section - East of Havana	35
Figure 28: Transition - 5 Lane to 3 Lane Separated Bike Lane	36
Figure 29: Corridor Phasing	38

TABLE OF CONTENTS



INTRODUCTION	1
Purpose of the Study	1
Study Area	3
Goals and Objectives	4
THE PLANNING PROCESS	5
Community Engagement	5
Survey Results	6
City Project Team Workshop #1	7
Public Open House	10
City Project Team Workshop #2	13
Public Demonstration Event	14
EXISTING CONDITIONS	16
Context and Zones	19
Traffic Analysis	23
ALTERNATIVE CROSS SECTIONS	27
Alternatives by Zone	27
PREFERRED CROSS SECTIONS	34
By Zone	34
Transitions	36
Phasing	37
APPENDICES	41
Appendix A: Montview Traffic Counts	
Appendix B: Montview Traffic LOS Output	
Appendix C: Survey Questions and Results	
Appendix D: Cost Estimate	

INTRODUCTION

Purpose of the Study

The **Montview Corridor Study** has the primary goal of applying existing and projected traffic projections and state of the art multi-modal boulevard design techniques to result in a phased retrofitting of Montview Boulevard as a safe and functional bicycle and pedestrian facility. The two-mile study corridor is Montview Boulevard from Yosemite Street east to Peoria Street.

The City also identified the following goals for the study process:

- Conduct a thorough and comprehensive **community stakeholder outreach process** to solicit concerns and issues
- Meet with staff from city departments to **identify concerns, constraints and requirements**
- Collect **traffic volume data**
- Assure a **city standard of LOS C or better** for all on-street bicycle facilities
- Prepare **design alternatives**, based on stakeholder outreach, illustrating how improved bicycle and pedestrian facilities could be integrated into the study corridor
- Present design alternatives to stakeholders and conduct a survey of staff and community stakeholders to **identify a preferred alternative**
- Provide a **phased implementation plan** and **cost analysis** for the preferred alternative



The project began with a **Kick-Off Meeting** with the City project team (July 25, 2014) consisting of representatives from several departments that have critical knowledge and history with the corridor and expertise of the various aspects of transportation, planning and multi-modal goals and objectives. Two City workshops were held and two public Open House events were held. The last event was a demonstration of the preferred cross section on May 9, 2015.



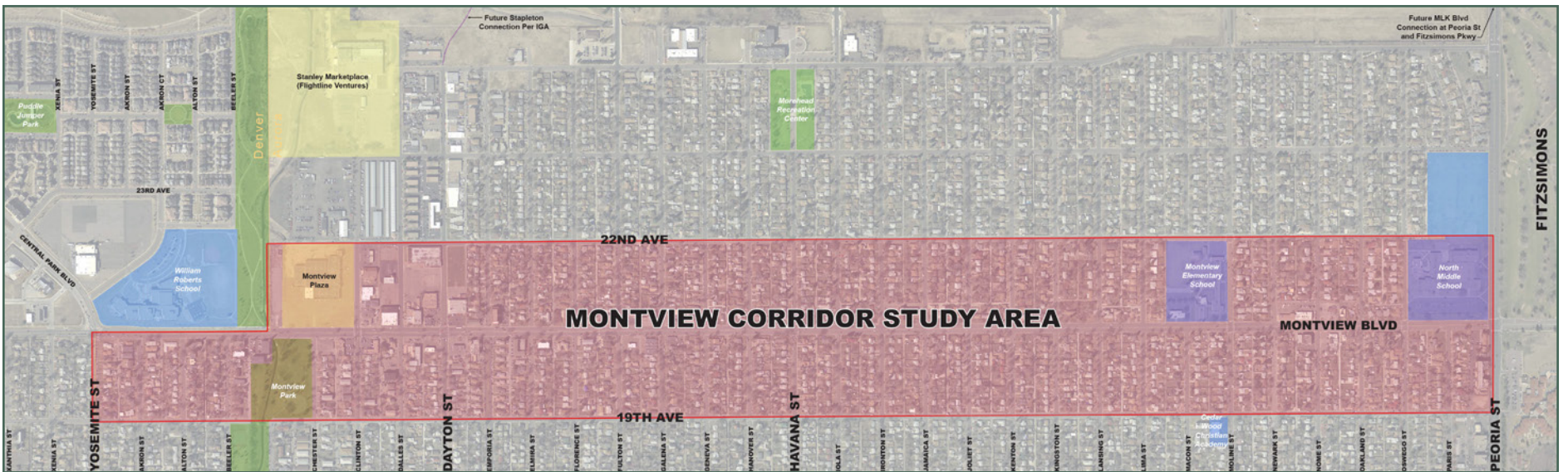


Figure 1: Study Area



Study Area

Montview Boulevard is a major entryway into north Aurora and the Anschutz Medical Center from Denver. The medical center is projected to bring 40,000 jobs to Aurora at full build-out and 60,000+ monthly visitors. The corridor is identified as a regional bicycle corridor on the DRCOG Pedestrian and Bicycle Element of the 2035 Metro Vision Regional Transportation Plan. In addition to the on-site development that will occur at the Anschutz Medical Center, considerable off-site development is expected to continue along Colfax Avenue, Peoria Street and the surrounding area compounding the necessity for Montview Boulevard to accommodate multiple transportation modes.



Montview Boulevard is primarily a residential roadway with pockets of neighborhood commercial uses. Traveling along the Montview corridor can be difficult at times as the street cross section changes from a two-lane collector street in Denver to a four-lane arterial in Aurora at Yosemite Street



creating traffic congestion during peak-hour periods. Similar peak-hour congestion is experienced at the intersection of Peoria Street and Montview Boulevard. A number of transportation improvements in proximity to the Montview corridor have recently been constructed, or are planned, which will improve traffic circulation.



For this planning project, the study area applies to the portion of Montview Boulevard from Yosemite Street on the west to Peoria Street on the east. The corridor is 1.9 miles long within this study area. For purposes of branding the project for the public outreach program, it is referred to as [Montview Connections](#). This refers to the importance of the corridor as an east west connection through the City linking Denver/Stapleton to the Anschutz Campus. It also refers to the goal of creating safer connections for pedestrians crossing the boulevard between neighborhoods and accessing schools and for improved bicycle safety with dedicated bike lanes.

Goals and Objectives

Utilizing the options developed during the 2012 Bicycle and Pedestrian Master Plan and documented in Appendix C of the plan, as well as traffic data obtained to date, the project team drafted project goals, critical to developing a comprehensive, full range of design options.

On December 9, 2014, a workshop was conducted with City staff and the project team to review the draft project goals and options for the corridor. Based on feedback from this workshop, the goals and options for the corridor were revised.

The Goals and Objectives, below, have been identified to guide this project. The future Montview Boulevard will:

- Improve **safety** for all roadway users—pedestrians, bicyclists, transit vehicles, freight vehicles, and motor vehicles
- Enhance **pedestrian and bicycle access** and **mobility** along the Corridor, especially to the Anschutz Medical Center and to K-12 schools
- Preserve **motor vehicle mobility** in the vicinity of Montview Boulevard

Ultimately, these goals will lead to the development of evaluation criteria.

Evaluation Criteria

Safety

- Separation of facility (bicyclist and pedestrian)
- Crash reduction potential (all)

Access

- Protected crossing opportunities (pedestrian)

Mobility

- Level of Traffic Stress (bicyclist)
- PLOS (pedestrian)
- LOS, delay, or AADT (vehicular)

Active Transportation & Health

- Type/comfort of facility (bicyclist and pedestrian)

Character

- Streetscape elements
- Access management

THE PLANNING PROCESS

Community Engagement

Our community engagement followed a process of involving residents, businesses, community organizations and other stakeholders in the decisions that affect their community.

Good community engagement enabled good governance and informed decision-making by promoting shared responsibilities for decisions.

It supported an open approach to managing a strong foundation for understanding decisions and building trust within the community of the decision-making process.

Importantly for the City of Aurora, maintaining the standards of an informed and engaged community was essential as many lifestyle changes and developments were being brought to life.

The need for collaboration, community partnerships and new ways of involving and empowering the community brought the excitement needed to not only sustain the vision but see it come to life.

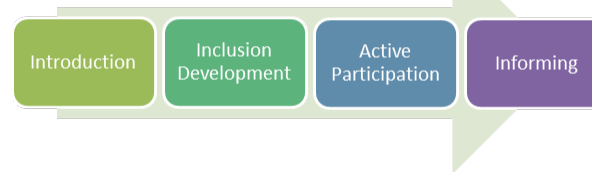
The Process

Community engagement involved a broad variety of activities, including:

- project **introduction** – provided an introduction of project possibilities
- **inclusion development** – outreach to the community to participate in the creation and decision making process
- **active participation**– allowed the community

to participate in the public meetings, making comments and suggestions and voicing to affect possible outcomes, reflecting a high level of engagement

- **informing** – presented to the community the results of their input, reflecting a low level of engagement.



Guiding Principles

The Montview Corridor Study team was guided by the following principles for community engagement and outreach:

- **Integrity**, engagement will be transparent, clear in scope and purpose
- **Inclusive**, engagement will be accessible and balanced
- **Dialogue**, engagement will promote dialogue and open up genuine discussion by providing a space to voice opinion
- **Informing** engagement will be reflected in the outcome, the community will be able to see and understand the impact of their involvement.



The **Outreach strategy** was designed to:

- Ensure that engagement is timely, accessible, planned and meaningful
- Undertake engagement activities that overcome barriers to public participation by encouraging the public to be a part of the decision making process, and be language inclusive.
- Provide feedback to the community on the results of their participation and contributions

Inclusion and accessibility

Central to Aurora’s commitment to engage with the diverse population that comprises the Montview Corridor Study Area, our team provided engagement opportunities that are language appropriate and easily accessed.

Our **engagement program** included:

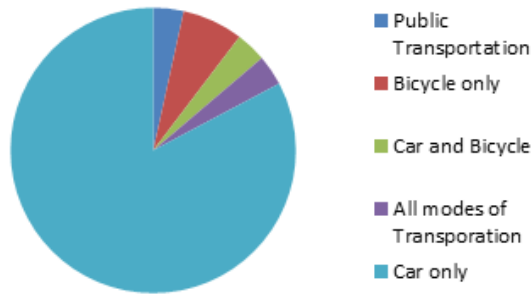
- Project introduction to Community Leaders and other Stakeholders
- Bilingual (English/Spanish) door-to-door project introduction/surveys
- Project introduction at neighborhood meeting(s)
- Participation in community events
- Bilingual (English/Spanish) door-to-door meeting announcement #1
- Alternatives Public Meeting (bilingual) indoor demonstration project of alternatives
- Collection of community comments
- Bilingual (English/Spanish) door-to-door open house announcement #2
- Final Design informal Open House (bilingual) and demonstration project

Survey Results

Two staff members participated in Aurora's Fall Fest annual event held at Fletcher Plaza on Saturday, October 18, 2014. Brief project information was accompanied by a simple survey to introduce the Montview Boulevard Corridor Study to the public and to gain some feedback as to how they currently utilize the corridor. Bilingual staff described the project and handed out surveys. One hundred bilingual surveys were distributed, twenty nine were completed on site.

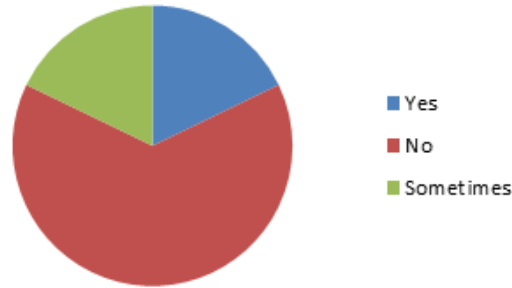
Of the 29 surveys completed, six preferred Spanish.

How do you move along Montview Boulevard? Car, Walk, Bike, Public Transportation



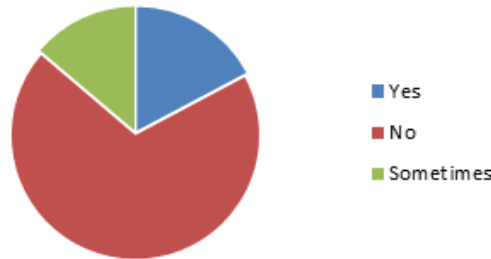
- One reported using only public transportation
- Two reported using only bicycle
- One reported using car and bicycle
- One reported using all modes of transportation
- All others (24) use car only

Do you shop along Montview?



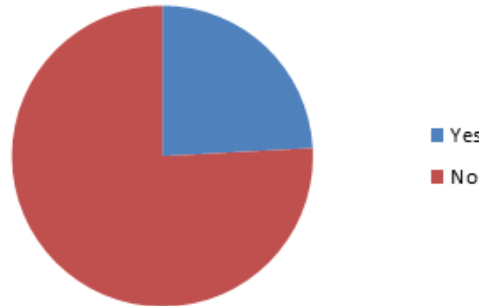
Yes – 6 No – 18 Sometimes – 5

Do you travel along Montview to get to work?



Yes – 5 No – 20 Sometimes – 4

Do you or your children travel along Montview to get to school?



Yes – 7 No – 22

Please tell us what, if anything, you would like to see improved along Montview Boulevard.

- Something more modern safer for the children
- Make it a “happening” place like it once was
- Sometime (something?)
- Better Bike
- Too hard
- Make it easier for people to walk around
- No kids (we believe this was a response to the above question regarding commute to school)
- Easier
- A bridge to cross to school
- Denver side better
- Colfax better
- This will be good
- Too scary
- Better bike lanes
- Ped friendly
- The street
- Do it all
- More bike-ability & safe travel at all hours.
- Lighting, speeds of cars, separate bike lanes, bus stops
- Safer for walker

Fall Fest at Fletcher Plaza



City Project Team Workshop #1

The first workshop with the City's project team was held on December 9, 2014. The agenda for the workshop involved the presentation of existing conditions, current and projected traffic volumes and the review of a total of five cross section alternatives. There was considerable discussion on how to best use the existing right of way to accommodate the bike lanes and wider sidewalks and landscaped area yet still maintain the functionality of the boulevard for vehicles.

The goal of the workshop was to come to some consensus on the alternatives that should be presented to the public for their input. The delineation of the separate zones for the specific cross sections was established. Follow-up review of exhibits was scheduled for mid-January with the planned Public Open House scheduled for February 11, 2015.

Figure 2: Bicycle Facilities

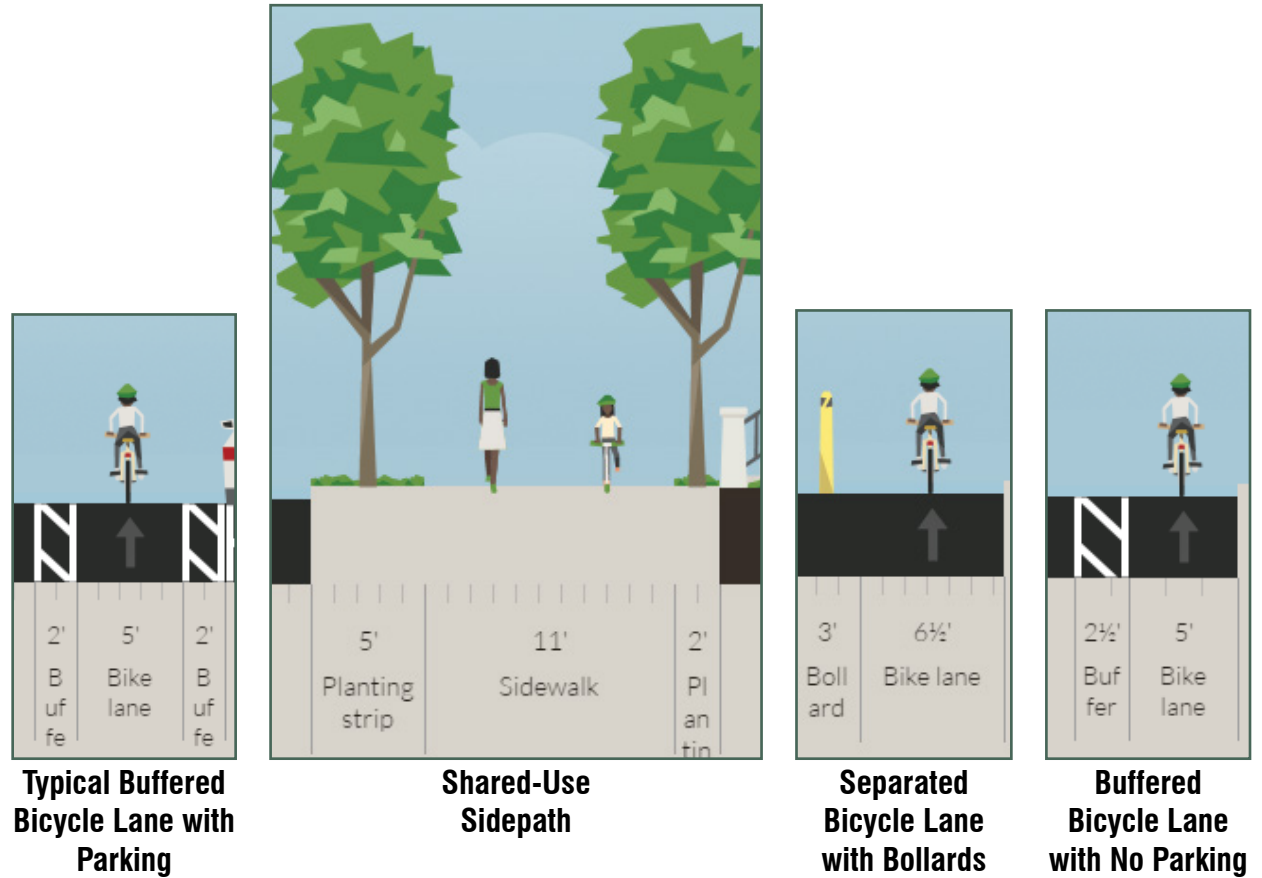


Figure 3: Pedestrian Facilities

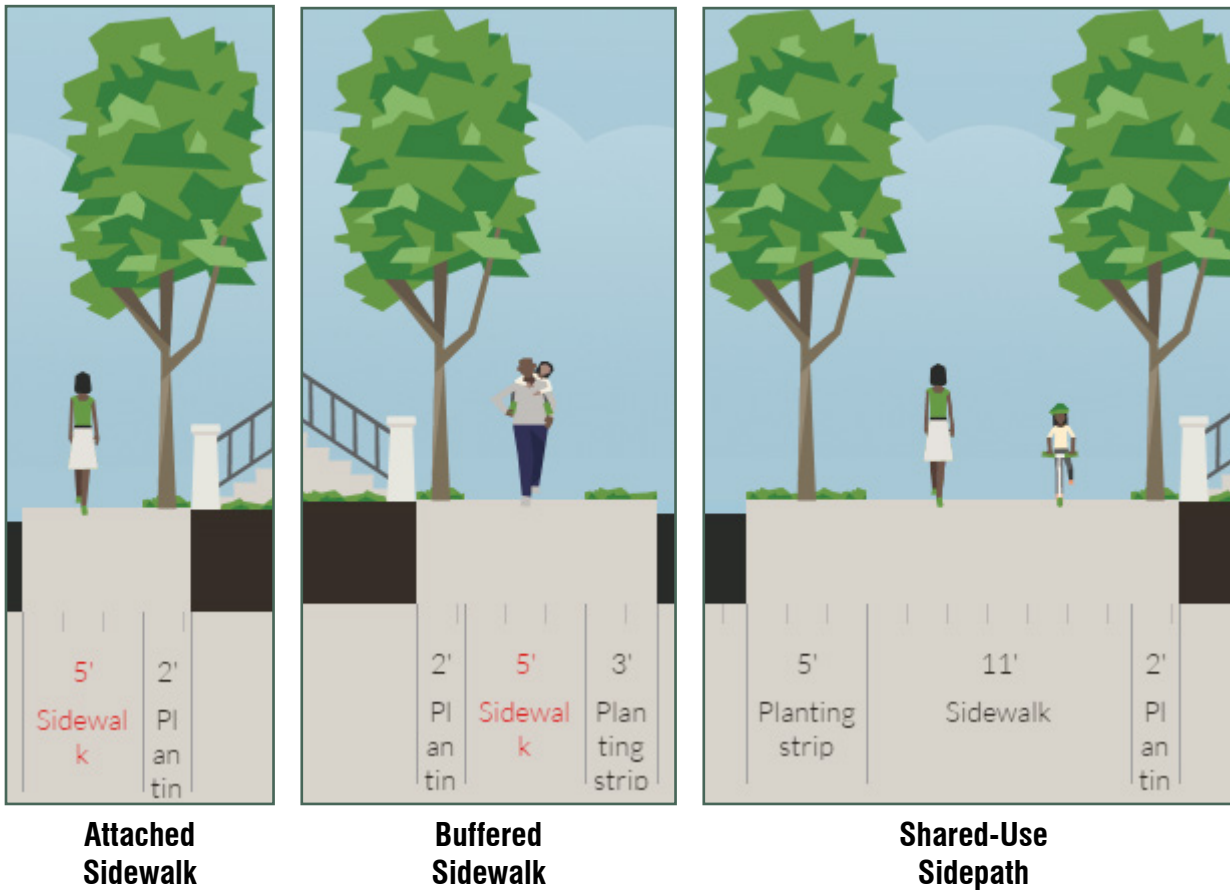
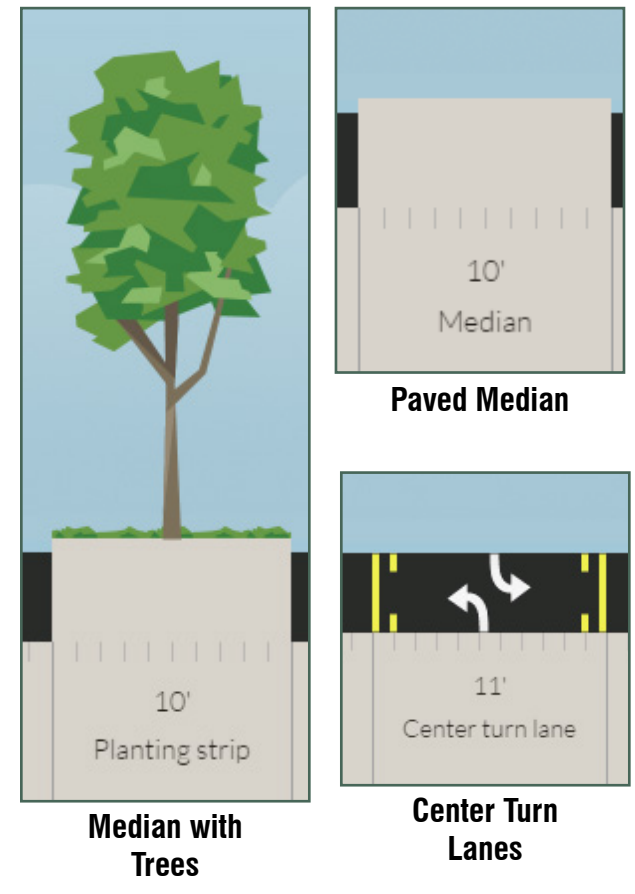
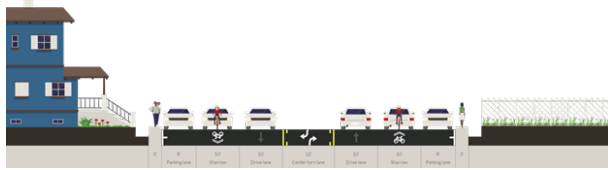


Figure 4: Access Management



Existing Conditions



Initial Design Option 3: Buffered Bike Lanes, Widened Sidewalks, Maintain On-Street Parking, 3 Lanes for Vehicles



With the previously stated potential goals in mind, these **initial design options** (left) were considered for Montview Boulevard. The options were then evaluated for their performance relative to the potential goals including safety benefits, mobility and access benefits, motor vehicle operations, and right-of-way impacts.

Initial Design Option 1: Buffered Bike Lanes, Widened Sidewalks, Remove On-Street Parking, 4 Lanes for Vehicles



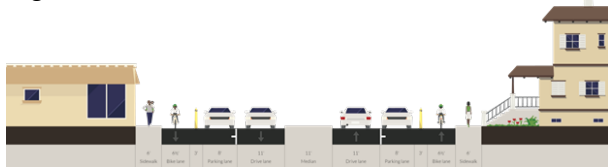
Initial Design Option 4: Buffered Bike Lanes, Widened Sidewalks, Remove On-Street Parking, 4 Lanes for Vehicles



All of the preliminary options, and all of the future ultimate options/alternatives, will have impacts in various categories. The following elements, many of these being trade-offs, will be evaluated and should be considered:

- Provision of a low-stress bicycling facility
- Provision of an ADA-compliant and comfortable sidewalk
- Provision of parking lanes
- Provision of travel lanes
- Provision of a median and intersection turn lanes

Initial Design Option 2: Separated Bike Lanes, Widened Sidewalks, Maintain On-Street Parking, 3 Lanes for Vehicles



Initial Design Option 5: Shared-Use Paths, Remove On-Street Parking, 4 Lanes for Vehicles



Public Open House

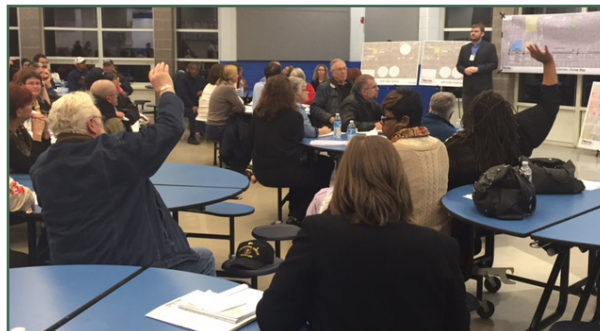
On February 11, 2015, the first Public Open House was held at North Middle School to introduce the planning project to the residents and stakeholders in the neighborhood, present the alternative cross sections produced during the City Workshop, distribute and collect surveys, and gather input from the community on current issues within the corridor and preferred improvement to the corridor in the future.

Advertisement of the event was through the City website, social media outlets, local public television network, and distribution of 3,500 bilingual fliers on adjacent residential and business properties. The result was attendance by over 90 people who listened to a short presentation, followed by a longer question-and-answer session, followed by attendees completing and submitting their surveys. These were distributed in both English and Spanish with Spanish translators available throughout the meeting.



Some of the **key issues** and **comments** received:

- Concern for the loss of on-street parking spaces in front of homes and businesses.
- Concern for the City's ability to maintain walks, bike lanes and landscaping. Existing medians are not well maintained.
- Concern about improving existing bus stops and creating safer pedestrian crossings.
- Concern for where existing right of way boundary is located. Some residents may have landscaped or built fences in this area.
- Concern for the cost of the improvements, timeframe for construction and the any increase in taxes to residents.



Fifty-four surveys were received, of which two were Spanish. While the full results of the survey are included in the appendix, the questions pertaining to the proposed corridor alternatives are summarized on the following pages.

Preferred Options:

8. Which Option for each zone do you prefer?

Commercial Zone

Enhanced Existing – 11

Why:

- I feel bicyclists could use 19th Ave and 22nd
- Because it allows for parking
- Businesses need parking
- With multi-use path
- Because of heavy traffic, more controls, use more lights, more police
- Keep bike travel as a safe option not 22nd street for commuters
- Traffic congestion, because traffic goes to one lane each way

Enhanced existing with Separated Bikeway – 28

Why:

- Better for businesses
- Don't like mixing peds with bikes
- Safety barriers between cars, bikes, peds
- Safer for bicyclists and eliminates cars changing lanes due to a slow biker ahead
- Safety
- Bicycle drivers ignore all signs
- Like in Europe
- Bikeways are important but people are not educated on how to be on the road with bike users
- Better flow of traffic, protect the cyclist
- Traffic
- Designated bike space
- Bike lanes, sidewalks and no on street parking
- Businesses have parking lots. Bikes can still bike, no on street parking

- Bicyclists stay on Montview not be diverted to 22nd
 - Like the separated bike lane, larger side walk
- No Comment – 16

West Residential Zone

Enhanced existing with Separated Bikeway – 26

Why:

- Safety
- It allows for parking
- Mixing bikes and walking kids is a mess
- Keep bike commuters away from peds
- Traffic flow
- Designated bike space
- Bikers need their own lane or on street with cars. Not with walkers
- Larger sidewalk designated bike lane

Mixed Bike & Pedestrian – 8

Why:

- Raised bicycle lane looks dangerous
- Safety

No Comment – 20

East Residential Zone

Road diet with Separated Bikeway – 19

Why:

- I really like the aesthetics and it will be the safest
- For the whole street from Yosemite to Peoria
- Safe Bikeway
- Safety
- Separating school kids in the median is the safest
- Better looking
- Bikes and peds are far from cars
- I like the bus pull outs for safety reasons

Buffered Bicycle Lane – 20

Why:

- Safety
- Middle school peds with bikes would be a disaster, those kids don't pay attention
- Larger side walks for pedestrians
- Because we can have on street parking in the buffer lane & bikes should be on the street with cars
- On street parking very important
- The Road Diet offers too many opportunities for garbage accumulation
- Neither option, one lane of traffic each way is insane

No comment – 15

Additional Comments:

- I do like the bikes on 22nd. The medians we do have now are not routinely cleaned. Adding more medians will only add to the problem of keeping the area free of trash.
- I prefer that bicycles use 22nd and NOT Montview AT ALL
- Taxes?
- I would like to see anything maintained
- We live on Joliet St. and observe many vehicles barely pausing at the stop sign on Joliet & Montview. Many drivers are texting & not paying attention to surroundings. Two blocks to south is 17th Ave., heavy traffic but very sane driving observing speed limits etc., It is my preferred exit and entry to Joliet and my home.
- Lower speeds at schools should be posted. Eliminate all parking on Montview.
- Why six - foot side walks? Two lanes of traffic into Fitz would help avoid back up of cars
- The presentation was great, thank you for taking the time to allow the community to view your project. I wish that there would have been more community representation. Perhaps marketing in the schools, recreation centers, businesses and their owners, etc. Also since these projects will always have City partnership, why not bring on more City staff to answer the un-answered questions.
- I'm not crazy about any of it. The city can't seem to maintain the 3-4 medians that exist.
- The demonstration meeting will be helpful. Consider round-about @ Havana intersection
- Bike & sidewalks, who cleans/shovels?
- My home is on Montview and on-street parking is most important. I also like having wide sidewalks for kids and adults
- It is really important that there is parking option on Montview Blvd
- Slow down traffic in school zones like they do every other city
- Lived here since late 80's and actually enjoy where I live except for all the apartment complex's and the traffic associated with them. Pretty good job with snow removal
- Timing of street lights
- No paved alleys and people through trash including mattresses, chairs etc.
- Thank you for having this meeting. All of these options are a huge improvement over current conditions.
- Getting harder to cross Montview @ Nome St. more traffic either on foot or trying to turn left in car. 22nd bike lane sounds good
- Developing architectural design consistency much like modern shopping area like Mississippi & Havana. Installing pedestrian activated crossing signals especially between long areas, between exiting traffic lights and close to bus stops.
- Anschutz needs to be at the table. They have a vested interest in making this redevelopment happen
- Seems best to be consistent all the way down Montview with a bike lane. And seems safer to have a bike lane
- Enhance bus stops for comfort not sleeping and safety, trees for shade. Consider electronic boards with times paid with ads. Ideally- Separate street from pedestrians with trees look at Broadway south of I-25 to see their new design
- You really need to talk to the bike commuters that are going to the medical campus which I believe impact the majority of who is currently biking Montview.
- Further move 22nd is a terrific idea, 17th is the alternate all medical campus bike commuters always use. Also better lighting important for early morning commute.
- Make sure medians are planted with xeriscape
- This needs to be done for safer flow of traffic. Both bike and auto. No parking on Montview Blvd. This street is too big for parking. Very few people park on Montview today.

City Project Team Workshop #2

Following the Public Open House, the City Project Team met again on February 26, 2015. The agenda for the workshop was to review the existing alternatives, the comments from the public through the meetings and surveys and then determine the preferred cross sections for each of the specified zones that are acceptable to the City and are supported by the public.

Each of the alternative sections (shown on pages 27-33) were evaluated, according to the measures outlined in the charts, below.

As a result, a Preferred Cross Section for each zone was selected (see pages 34-35).

West Residential Zone

Measure (As compared to existing)	Mixed Bicycle & Pedestrian	Enhanced Existing with Separated Bikeway
Improves safety and mobility for people who bicycle	++	+++
Improves safety and mobility for people who walk	++	+++
Maintains mobility for people who drive	+++	+++
Improves the character of the corridor	++	++
Preferred by the community	+	+++
Limits parking removal	+	+
Limits the need for maintenance	++	+
Limits construction costs	++	+
Summary (total "score")	15	17

Commercial Zone

Measure (As compared to existing)	Enhanced Existing	Enhanced Existing with Separated Bikeway
Improves safety and mobility for people who bicycle	+	+++
Improves safety and mobility for people who walk	+++	+++
Maintains mobility for people who drive	+++	+++
Improves the character of the corridor	+	++
Preferred by the community	+	+++
Limits parking removal	+++	+
Limits the need for maintenance	+++	+
Limits construction costs	+++	+
Summary (total "score")	18	17

East Residential Zone

Measure (As compared to existing)	Road Diet with Buffered Bicycle Lane	Road Diet with Separated Bicycle Lane
Improves safety and mobility for people who bicycle	++	+++
Improves safety and mobility for people who walk	+++	+++
Maintains mobility for people who drive	++	++
Improves the character of the corridor	+++	++
Preferred by the community	++	++
Limits parking removal	+	+
Limits the need for maintenance	++	+
Limits construction costs	++	+
Summary (total "score")	17	15*

*Not included in scoring: consistency with adjacent zone recommendation

Legend

- +++ High (3)
- ++ Medium (2)
- + Low (1)

Public Demonstration Event

A key part of the project scope, the Final Public Meeting and Demonstration Event was designed to provide an interactive, scaled example of the recommended alternative. It was intended to celebrate the study recommendations and build momentum for implementation. The Residential East segment was chosen to demonstrate; this section includes three vehicular travel lanes including a center-left turn lane, a wide tree lawn, a separated bicycle lane, and a widened sidewalk. Residents were invited to bring their bikes and to bike and walk along the mock street to experience the proposed changes.

The demonstration event was planned for Saturday, May 9 to coincide with National Bike to School Day and prior to the end of the school year. Preparation for the event included community outreach with 3,500 bilingual fliers delivered door-to-door to the businesses along Montview and residents two blocks north and south of the Boulevard. A promotional piece ran in the April edition of News Aurora, Community Channel 8 ran a promotion, electronic versions of the flier were provided to Stapleton, NANO, BeWell, City Council, Aurora Public Schools and the recreation centers who distributed to their networks.



The original plan for the event involved a full-scale model of the street to be “built” within the parking lot at North Middle School. Unfortunately, the event had to be moved indoors due to rain. As such, the cafeteria was converted into the event venue. The project team set up a full-scale model

of half of the street section including a travel lane, tree lawn, separated bicycle lane, and sidewalk. Travel lanes included the appropriate modal symbols (vehicle, bicycle, and pedestrian), and lane lines were marked with colored duct tape. The tree lawn was filled with artificial trees and foliage.



Transforming Montview Boulevard

May 9, 2015, 10:00 am-2:00 pm

North Middle School 12095 E. Montview Blvd., Aurora

Bring your Family! Ride your Bike!

Please join us to let us know what you think about our proposals for making Montview a safe and pleasant street for everyone. The event will include food, giveaways, and a to-scale model of a proposed street design, which you will be able to walk and bike along! You will also be able to learn about the project and let us know what you think about the future of Montview.

FOOD, FUN, GIVE AWAYS

Everyone is welcome to participate!



Transformación de Montview Boulevard

9 de mayo de 2015, de 10:00 am a 2:00 p.m.

North Middle School 12095 E. Montview Blvd., Aurora

¡Traiga a su familia! ¡Andar en bicicleta!

Le rogamos que nos diga lo que piensa acerca de nuestras propuestas para convertir a Montview en una calle segura y placentera para todos. ¡El evento ofrecerá comida, regalos, y un modelo a escala de un diseño de una calle propuesta, a lo largo de la cual podrá caminar y montar en bici! También se podrá informar más acerca del proyecto y podrá compartir su opinión acerca del futuro de Montview.

COMIDA, DIVERSION, REGALOS

¡se invita a todos a participar!



The public was also able to review the original designs, presented on large presentation boards, and have one-on-one discussions with the design team. Bilingual resources were available. Food (pizza) and drinks were served. An exit survey was provided to all attendees.



Community partners were invited to participate including: NANO (North Aurora Neighborhood Organization), Stanley Aviation, Aurora Recreation Centers, Stapleton Foundation, BeWell Aurora.

Approximately 60 people attended the event. Of these, 35 filled out feedback forms. The summarized results of the feedback are:

- 85% regularly drive
- 56% regularly walk or bike for recreation
- 53% would like to walk or bike more often
- 38% regularly walk or bike for transportation
- 12% regularly take public transportation

Would a separated bicycle lane and wider sidewalk along Montview make you more likely to bicycle on the street?

Yes 74% No 26%

Would a separated bicycle lane and wider sidewalk along Montview make you more likely to walk along the street?

Yes 79% No 21%

If with kids, would a separated bicycle lane and wider sidewalk along Montview make it more likely that your kids would bicycle on this street?

Yes 80% No 20%

Do you think the proposals for Montview would improve safety along the street for cars, bicyclists, pedestrians and transit riders?

Yes 82% No 18%

EXISTING CONDITIONS

Critical to the success of this planning effort is a thorough analysis of existing conditions within and adjacent to the Montview Boulevard Corridor. The **Context Map** shows the study area with the red boundary line that clearly illustrates how important this corridor is as a connection between Denver and the Stapleton community and the Anschutz Medical Center which continues to redevelop the

former Fitzsimons Army Medical Center property. The **Context Map** also indicates the schools and parks within the corridor and major destinations outside the corridor such as the Aurora Cultural Arts District, the Lowry Redevelopment and Fast Tracks alignment and station locations.

The majority of the Montview Corridor is an 80'

wide right-of-way. A recently completed survey of the west end indicates a 100' right-of-way near the commercial uses. Observations of the existing conditions identify a few homes and businesses with direct access onto Montview Boulevard that need to be considered in future improvements. Another key observation was that only 10% of the on-street parking is utilized. Only 16 cars were observed parked along the entire two mile corridor in December 2014 which contains 440 total on-street parking spaces.

The **Existing Zoning** map illustrated the diversity of uses along the corridor and those areas that will likely be targeted for redevelopment. These small commercial districts along the corridor have the potential opportunity to continue to provide neighborhood scale services to the local neighborhoods within a multi modal corridor.

The following policy documents were reviewed as they apply to future planning in the corridor study area:

- The 2009 Comprehensive Plan;
- The Westerly Creek Greenway Master Plan;
- The 2012 Westerly Creek Village Comprehensive Plan amendment;
- The 2012 Bicycle & Pedestrian Master Plan; and
- The 2013 Westerly Creek Village Urban Renewal Plan.

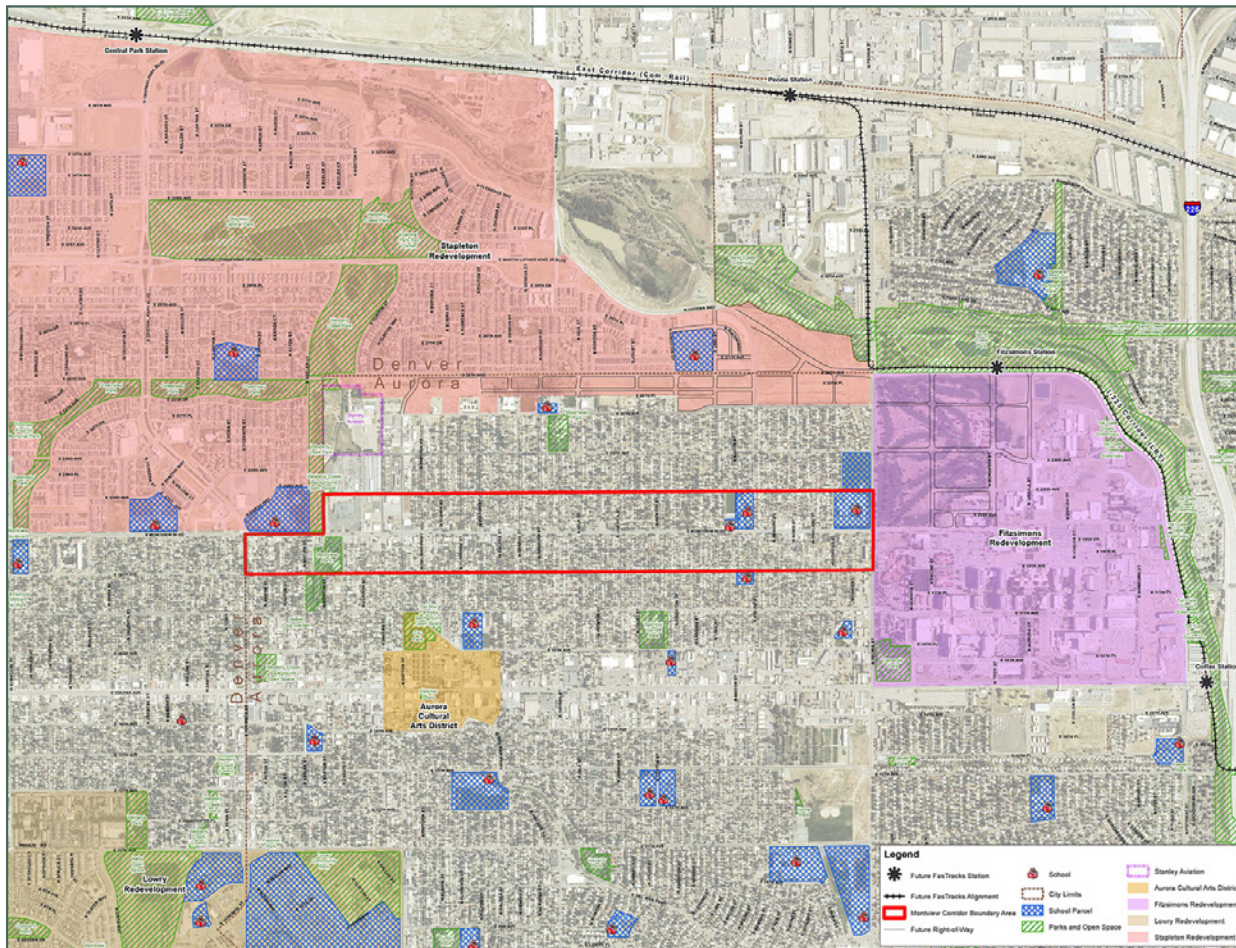


Figure 5: Context Map

Existing Montview Boulevard

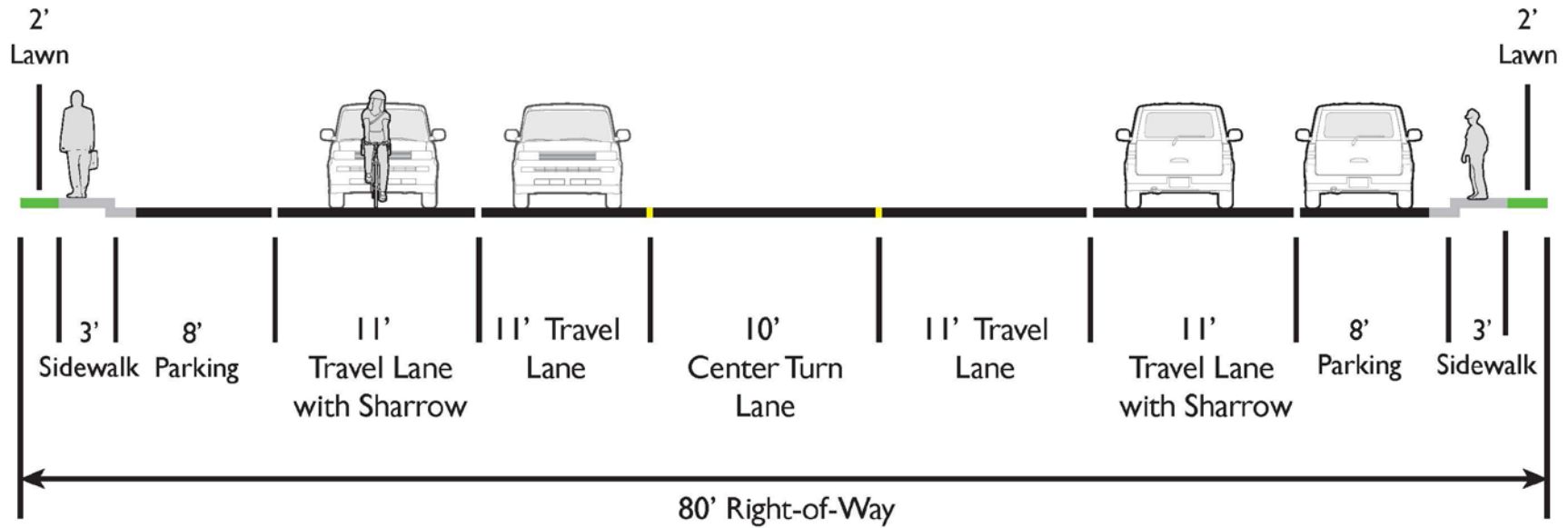


Figure 7: Existing Montview Boulevard Section

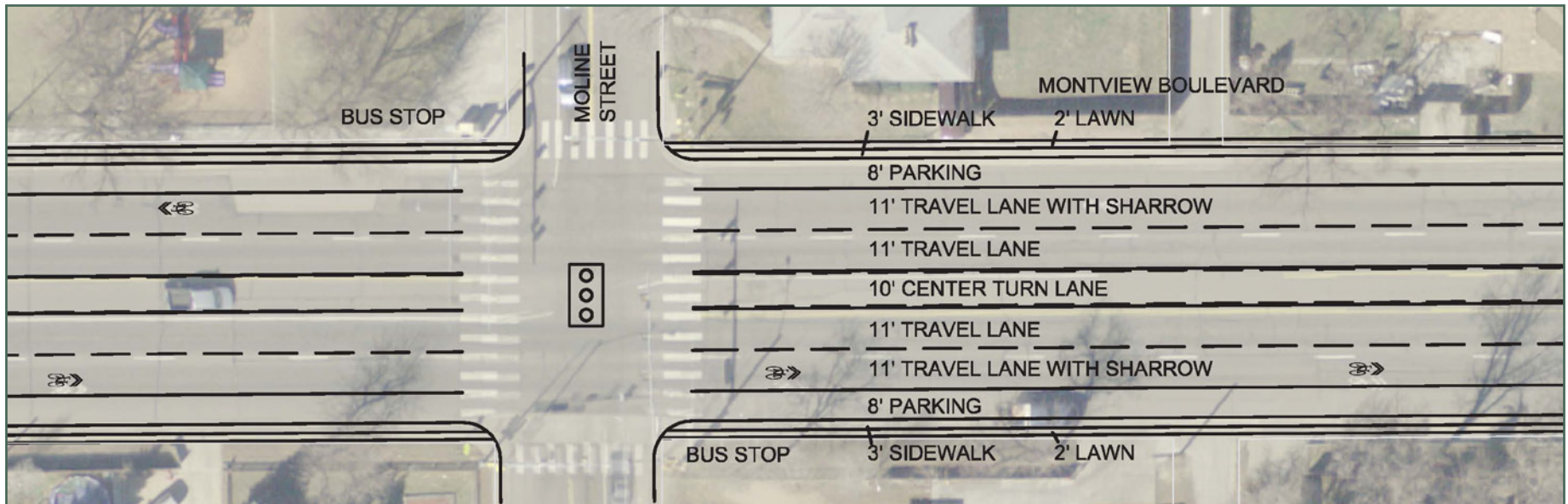


Figure 8: Existing Montview Boulevard Plan

Context and Zones

After the workshop with the City, the project team reviewed the Corridor to identify different characteristics of the roadway, in order to determine logical zones or segments to which different street treatments could be applied. Three different segments of the roadway were identified, as shown on the following page: **High Volume Residential**, **Low Volume Residential**, and **Commercial**. For each of these, a small area was chosen to show how selected options could be applied. These are shown in plan view in Attachment A.

The **High Volume Residential** segment contains primarily residential buildings along the street. The roadway generally carries over 18,000 vehicles per day. There is low demand for on-Montview parking in this segment due to orientation of

the houses and/or the off-street parking options. The options that could apply to this segment are **Enhanced Existing with Separated Bikeway** and **Mixed Bicycle and Pedestrian**. There is a High Volume Residential segment on the west end of the study area, and to the east of the Commercial segment.

The **Commercial** segment is primarily a commercial zone. Many of the commercial land uses have off-street parking. The traffic volumes through the commercial zone are over 18,000 vehicles per day. The options that could apply to this segment are **Enhanced Existing** and **Enhanced Existing with Separated Bikeway**. The area of focus for this segment is between Clinton Street and Florence Street.

The **Low Volume Residential** segment contains primarily residential buildings along the street. The traffic volumes in this typology are generally under 18,000 vehicles per day, and therefore within the industry-accepted range for a road diet treatment (from four to three lanes). There is low demand for on-Montview parking in this segment due to orientation of the houses and/or the off-street parking options. The concepts selected for this typology are **Road Diet with Separated Bikeway** and **Buffered Bicycle Lane**.

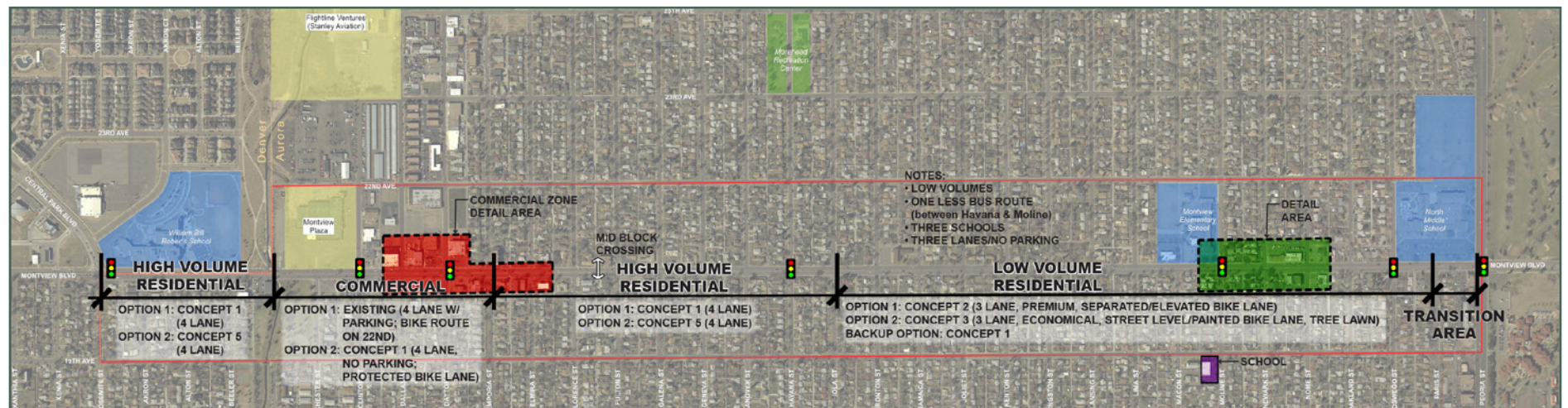


Figure 9: Preliminary Corridor Zones

Characterizing the corridor based on uses and traffic volumes, the west and east zones emerged with Iola Street being the dividing line. However, an alternative that addresses on-street parking for the commercial zone between Westery Creek and Emporia Street suggested that this area be a sep-

arate zone. It was also discovered that additional right-of-way in this area may result in opportunities for additional sidewalk width or additional streetscaping.



Figure 10: Corridor Zones - West

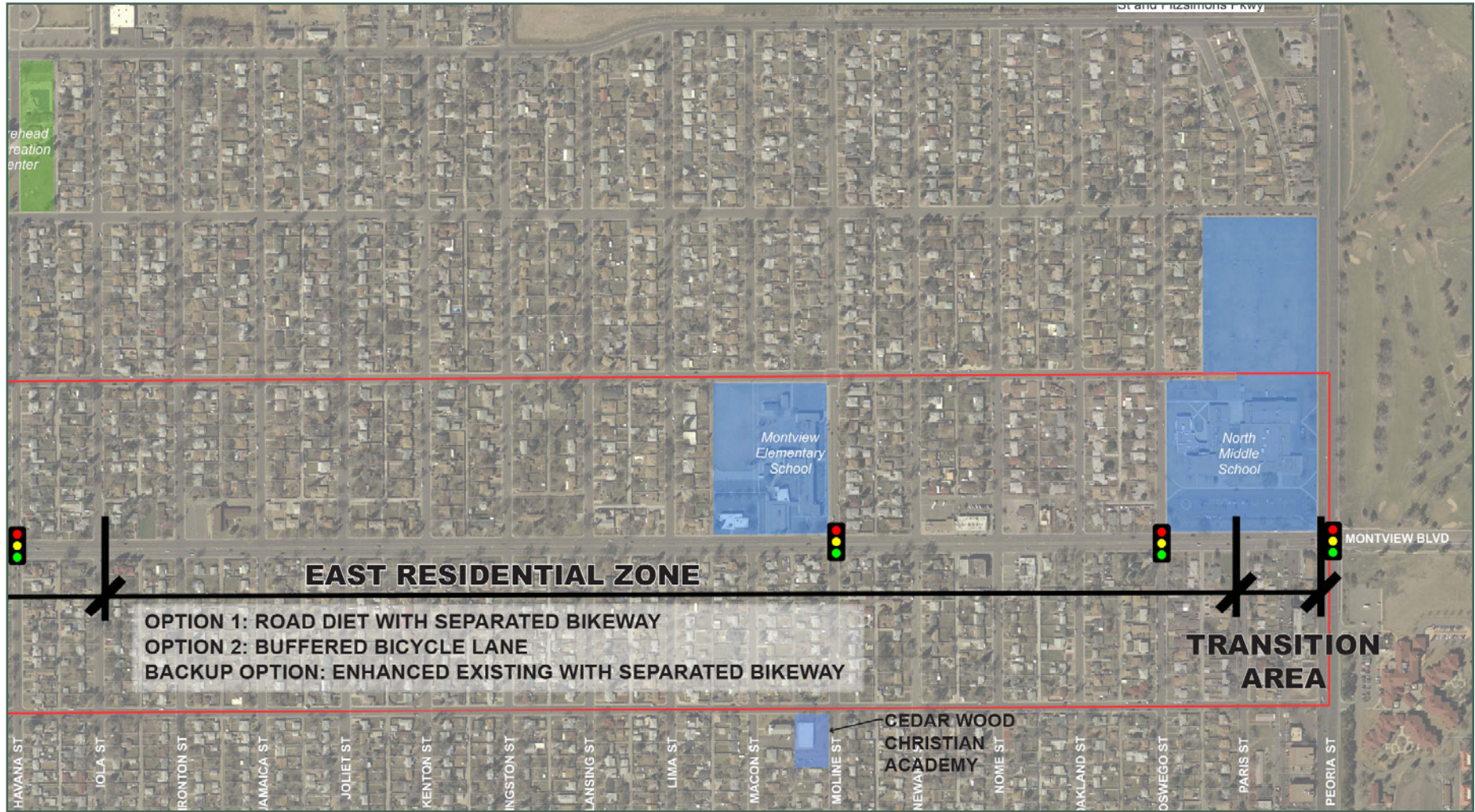


Figure 11: Corridor Zones - East

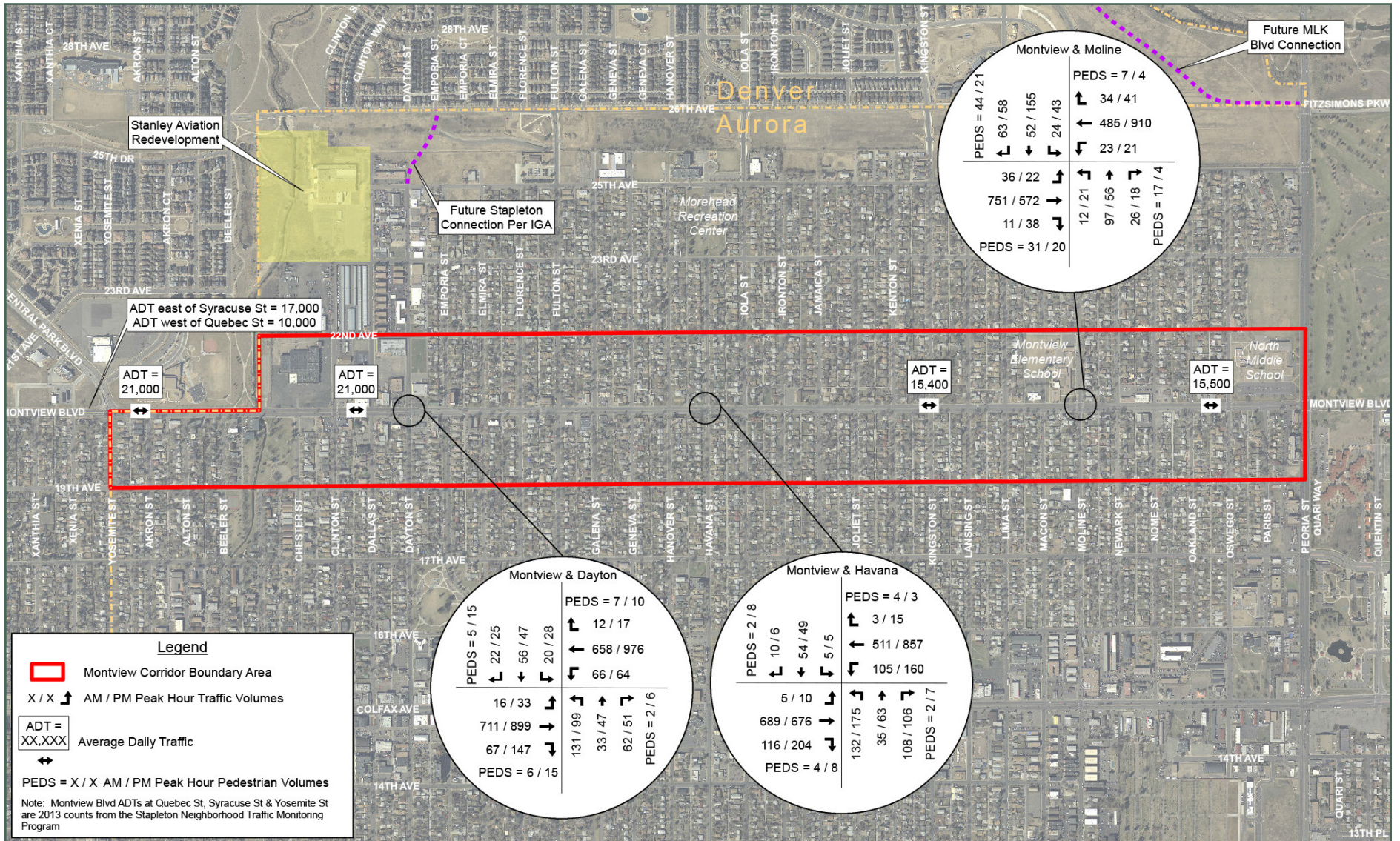


Figure 12: 2014 Traffic Volumes

Traffic Analysis

Montview Boulevard was identified as an important bicycle corridor in the *Fitzsimons Area Wide Multi-Modal Transportation Study* dated June 2009 by Fehr & Peers. The **Montview Connections Project** takes this concept and goes a step further to look at improvements for both bicyclists and pedestrians while accommodating current and projected 2035 vehicular traffic volumes. The scope of this analysis is for the Montview Boulevard corridor from Yosemite Street to Peoria Street with three signalized intersections identified to serve as representative locations for the corridor. It is understood that any proposed improvements to the corridor will require a transition zone to connect to the intersection of Montview Boulevard & Yosemite Street and a second transition zone to connect to future intersection improvements at Montview Boulevard & Peoria Street both of which are outside the scope of this study.

Existing Traffic Volumes

Traffic volumes were counted at key locations along Montview Boulevard on Wednesday, October 15th, 2014. 24-hour traffic volumes were counted immediately east of Oakland Street, immediately east of Kenton Street, and immediately east of Clinton Street. Peak hour turning movement volumes were counted at the intersections of Montview Boulevard & Dayton Street, Montview Boulevard & Havana Street, and Montview Boulevard & Moline Street. The existing traffic volumes can be seen in the 2014 Traffic Volumes exhibit.

The 24-hour traffic counts are assumed to represent the average daily traffic (ADT) volumes on Montview Boulevard. Based on these counts, there are two distinct areas where the ADTs vary. East of Havana Street the ADT is approximately 15,500 vehicles per day as seen east of Kingston Street and east of Oakland Street. West of Havana Street, the 24-hour count shows 21,000 vehicles per day east of Clinton Street, and this higher volume of traffic is confirmed by a 2013 traffic count conducted east of Yosemite Street as part of the Stapleton Neighborhood Traffic Monitoring Program. As a point of reference, the 3-lane section of Montview Boulevard in Denver has 17,000 vehicles per day immediately east of Syracuse Street and 10,000 vehicles per day immediately west of Quebec Street per the Stapleton Neighborhood Traffic Monitoring Program.

Projected 2035 Traffic Volumes

A number of steps were taken to determine the anticipated 2035 traffic volumes for Montview Boulevard. To begin, the traffic counts discussed above were sent to the Denver Regional Council of Governments (DRCOG) and the 2035 planning year COMPASS model traffic volumes were requested. As confirmed via email. The 2035 COMPASS model includes build-out of Fitzsimons, build-out of Stapleton, and build-out of the RTD FasTracks East Line and I-225 Line. Based on the regional travel demand model calibrated for the 2014 traffic counts, DRCOG anticipates 17,900 vehicles per day east of Kenton Street and east of Oakland Street and 28,500 vehicles per day east of Clinton

Street. As confirmed via email, the DRCOG Regional Travel Demand Model anticipated 28,500 to 30,000 vehicles per day between Yosemite Street and Dayton Street with the ADTs dropping gradually east of Havana Street.

After staff review of the projected 2035 traffic volumes, City of Aurora Traffic Engineering felt that the DRCOG traffic projections were too low and that the traffic projections included in the *Fitzsimons Area Wide Multi-Modal Transportation Study* by Fehr & Peers dated June 2009 (Fitzsimons Study) should be used in its place. After calibrating the 2035 traffic volumes from the Fitzsimons Study using the methodologies contained within NCHRP 255, the 2035 planning year traffic volumes were increased east of Havana Street from 17,900 to 21,500 vehicles per day and increased west of Havana Street from 28,500 to 30,000 vehicles per day. The 30,000 vehicles per day west of Havana Street represents a growth factor of 1.43 over the existing ADT and the 21,500 vehicles per day east of Havana Street represents a growth factor of 1.39 over the existing ADT. The 1.39 growth factor was applied to the intersection at Moline Street and the 1.43 growth factor was applied to the intersections at Dayton Street and at Havana Street to determine 2035 AM & PM peak hour turning movement volumes. The 2035 traffic projections can be seen in the 2035 Traffic Volumes Exhibit.

Traffic Signal Analysis

Based on the traffic volumes discussed above, Synchro 8 Software was used to determine the

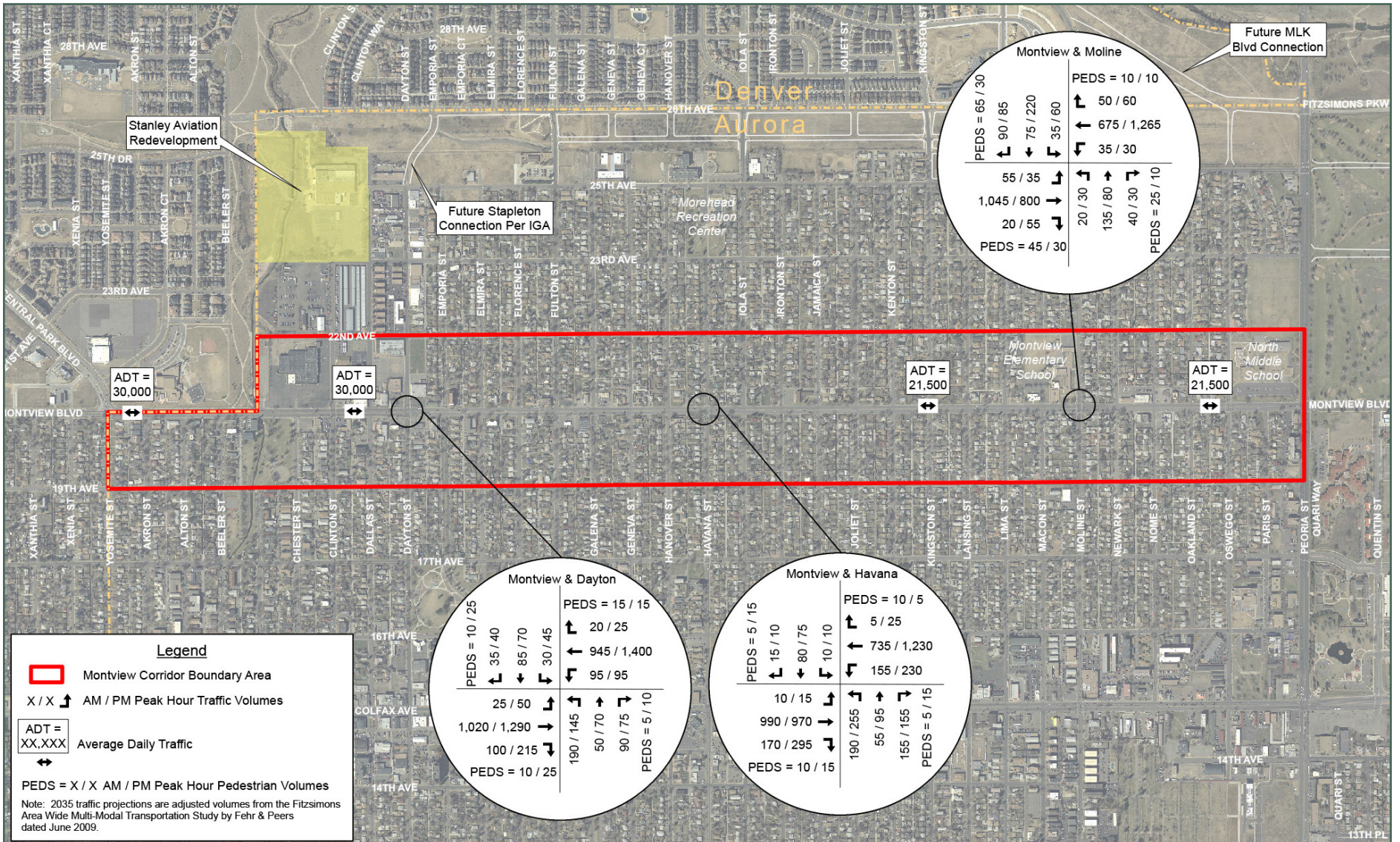


Figure 13: 2035 Traffic Projections

existing and anticipated 2035 performance of the Montview Boulevard signalized intersections at Dayton Street, Havana Street, and Moline Street. Synchro incorporates the methodologies of the 2010 Highway Capacity Manual published by the Transportation Research Board which assigns a letter to the average delay experienced by a vehicle with LOS A representing very little delay and lots of extra capacity, LOS F representing gridlock conditions and LOS D representing the capacity of an intersection. Table 1 below summarizes the results based on existing roadway geometry.

Table 1 – Montview Boulevard Traffic Signal Performance w/ Existing Roadway Geometry

Intersection	2014 AM	2014 PM	2035 AM	2035 PM
Montview Blvd. & Clinton St.	LOS B	LOS B	LOS B	LOS C
Montview Blvd. & Havana St.	LOS C	LOS B	LOS C	LOS D
Montview Blvd. & Moline St.	LOS B	LOS B	LOS C	LOS B

In order to fulfill the goals of the **Montview Connections Project**, a number of design alternatives were discussed and examined in an attempt to improve pedestrian and bicycle facilities while also accommodating vehicular traffic and limiting improvements to the existing 80' right-of-way. One option raised early in the process was reducing the cross section to three traffic lanes along the entire corridor to match the existing Denver section of Montview Boulevard west of Yosemite Street. The

Road Diet Informational Guide published by the Federal Highway Administration dated November 2014 suggests that roadways with ADT of 20,000 vehicles per day may be good candidates for a Road Diet while also acknowledging that the City of Seattle has implemented road diets for volumes up to 25,000 vehicles per day and that other studies have documented road diets with ADTs ranging from 8,500 to 24,000 vehicles per day. Using the 2014 and 2035 traffic volumes discussed previously, the three intersections identified for the corridor were again analyzed to determine how they would perform if a road diet were implemented for the entire corridor. Table 2 summarizes the results.

Table 2 – Montview Boulevard Traffic Signal Performance w/ Road Diet Full Corridor

Intersection	2014 AM	2014 PM	2035 AM	2035 PM
Montview Blvd. & Clinton St.	LOS B	LOS B	LOS F	LOS F
Montview Blvd. & Havana St.	LOS C	LOS C	LOS F	LOS F
Montview Blvd. & Moline St.	LOS B	LOS C	LOS C	LOS D

As seen in Table 2, the Montview Boulevard intersections with Clinton Street and with Havana Street are both anticipated to perform at LOS F in 2035 if a 3-lane section is provided. These results can be expected considering the anticipated 2035 ADT for this segment is above the threshold suggested by the Road Diet Informational Guide.

As directed by City of Aurora Traffic Engineering, Montview Boulevard is classified as an arterial roadway and must be able to adequately handle the projected 2035 traffic volumes. For this reason and through the input of public outreach efforts, the preferred alternative is a 5-lane section from Yosemite Street to Havana Street, transitioning to a 3-lane section east of Havana Street, and then carrying the 3-lane section until the transition zone approaching Peoria Street. Table 3 summarizes the performance of the preferred alternative.

Table 3 – Montview Boulevard Traffic Signal Performance w/ Preferred Alternative

Intersection	2014		2035	
	Exist AM/PM	Preferred Alternative AM/PM	Exist AM/PM	Preferred Alternative AM/PM
Montview Blvd. & Clinton St.	B/B	B/B	B/C	B/C
Montview Blvd. & Havana St.	C/B	C/B	C/D	C/D
Montview Blvd. & Moline St.	B/B	B/C	C/B	C/D

Conclusions

1. The scope of this traffic analysis is for Montview Boulevard from Yosemite Street to Peoria Street. It is understood that any proposed improvements to the corridor will require a transition zone to connect to the intersection of Montview Boulevard & Yosemite Street and a second transition zone to connect to future intersection improvements at Montview Boulevard & Peoria Street both of which are outside the scope of this study.
2. With the existing roadway geometry, there is extra capacity along the Montview Boulevard corridor under existing traffic volumes as well as under projected 2035 traffic volumes.
3. Based on guidance provided by the FHWA Road Diet Informational Guide, Montview Boulevard is a potential candidate for a road diet.
4. Under existing traffic volumes, a road diet is a potential design alternative for the entire Montview Boulevard corridor; however, under anticipated 2035 traffic projections, the Montview Boulevard intersections at Dayton Street and at Havana Street would perform at LOS F in both the AM and PM peak hours.
5. With traffic performance and public input taken into consideration, the preferred alternative is for a 5-lane section from Yosemite Street to Havana Street, transitioning to a 3-lane section east of Havana Street and carrying the 3-lane section until the transition zone approaching Peoria Street.
6. As shown in Table 2 of the analysis, a road diet would work for the entire corridor under existing traffic volumes. As an interim condition for the preferred alternative, the outside lane of the 5-lane section could be striped for parking until future traffic volumes warrant converting the parking to through traffic.
7. In response to some public comments about difficulties turning onto Montview Boulevard from the side streets, the City could look at adding one or two additional traffic signals to Montview Boulevard to improve platooning on the corridor and provide additional points of signalized access to Montview Boulevard. These potential signals would fit within the guidelines of Warrant 6 of the Manual on Uniform Traffic Control Devices (MUTCD) for Coordinated Signal Systems. Two potential locations for additional traffic signals are at Kingston Street and at Fulton Street. Both locations work well with the traffic signal progression of the corridor and provide connections to Stapleton to the north. If the Fulton Street location were implemented, it would be recommended that the pedestrian signal west of Fulton Street be removed.

ALTERNATIVE CROSS SECTIONS

Alternatives by Zone

With the previously stated goals in mind, the design options shown on the following pages (Figure 14 through Figure 25) were considered for Montview Boulevard.

Commercial Zone Enhanced Existing

Highlights:

- Four through travel lanes
- Dedicated turn lanes at each roadway intersection with median in between
- On-street parking remains
- Bicycle traffic clearly directed, via wayfinding, to a proposed bicycle boulevard on 22nd Avenue
- Sidewalk to be widened to 6 feet
- On-street parking could be removed, at spot locations, to provide a landscaped buffer or amenity zone

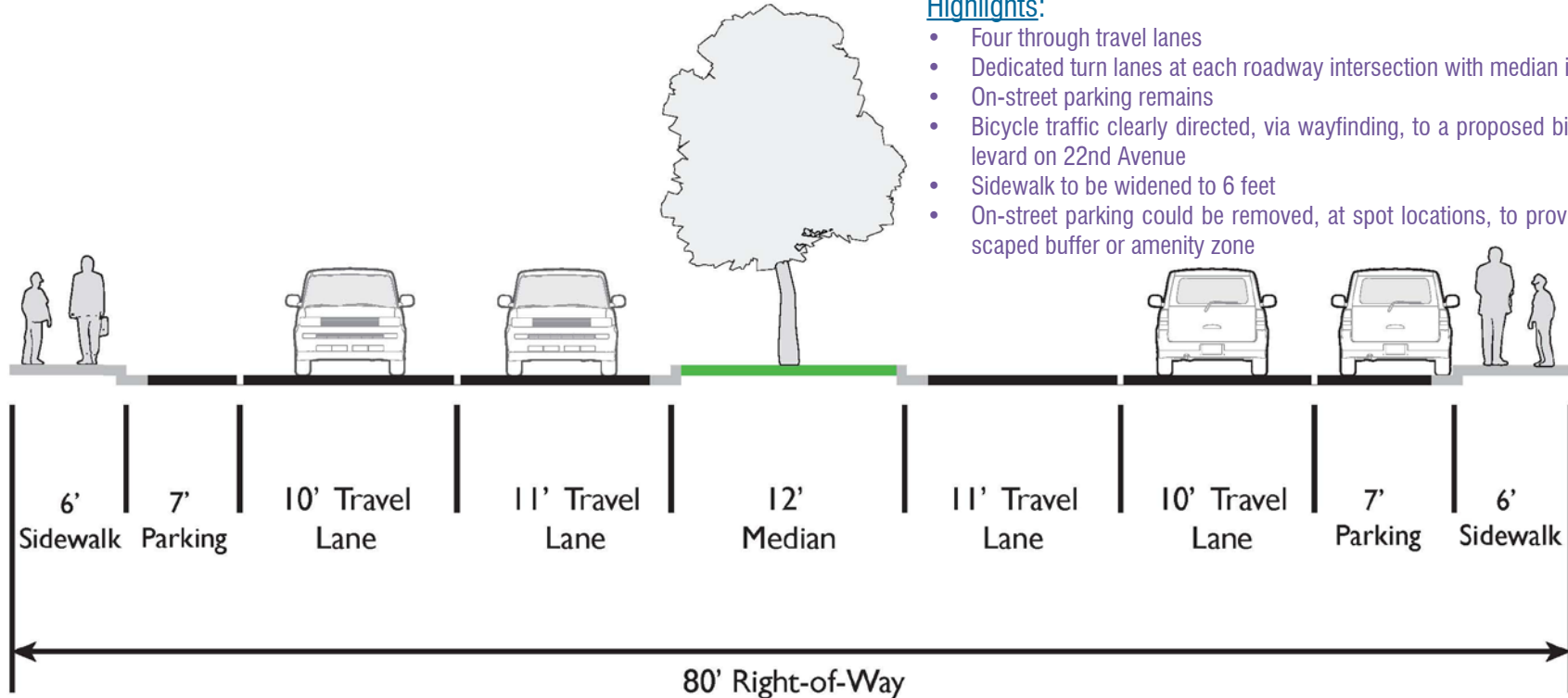


Figure 14: Commercial Zone Enhanced Existing - Section

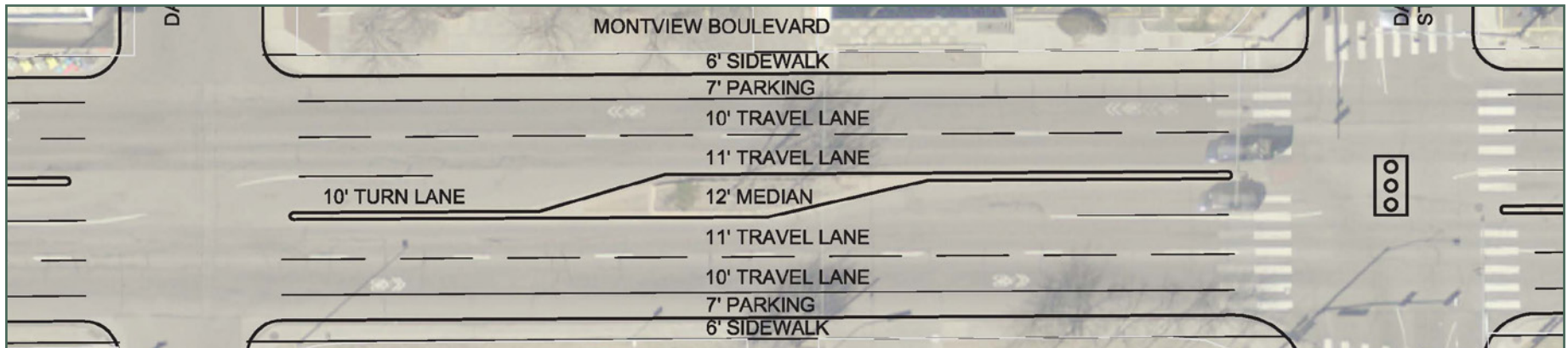


Figure 15: Commercial Zone Enhanced Existing - Plan

Commercial Zone Enhanced Existing with Separated Bikeway

Highlights:

- Four through travel lanes
- Dedicated turn lanes at each roadway intersection with median in between
- Raised separated bicycle lane
- Sidewalk to be widened to 6 feet
- No on-street parking

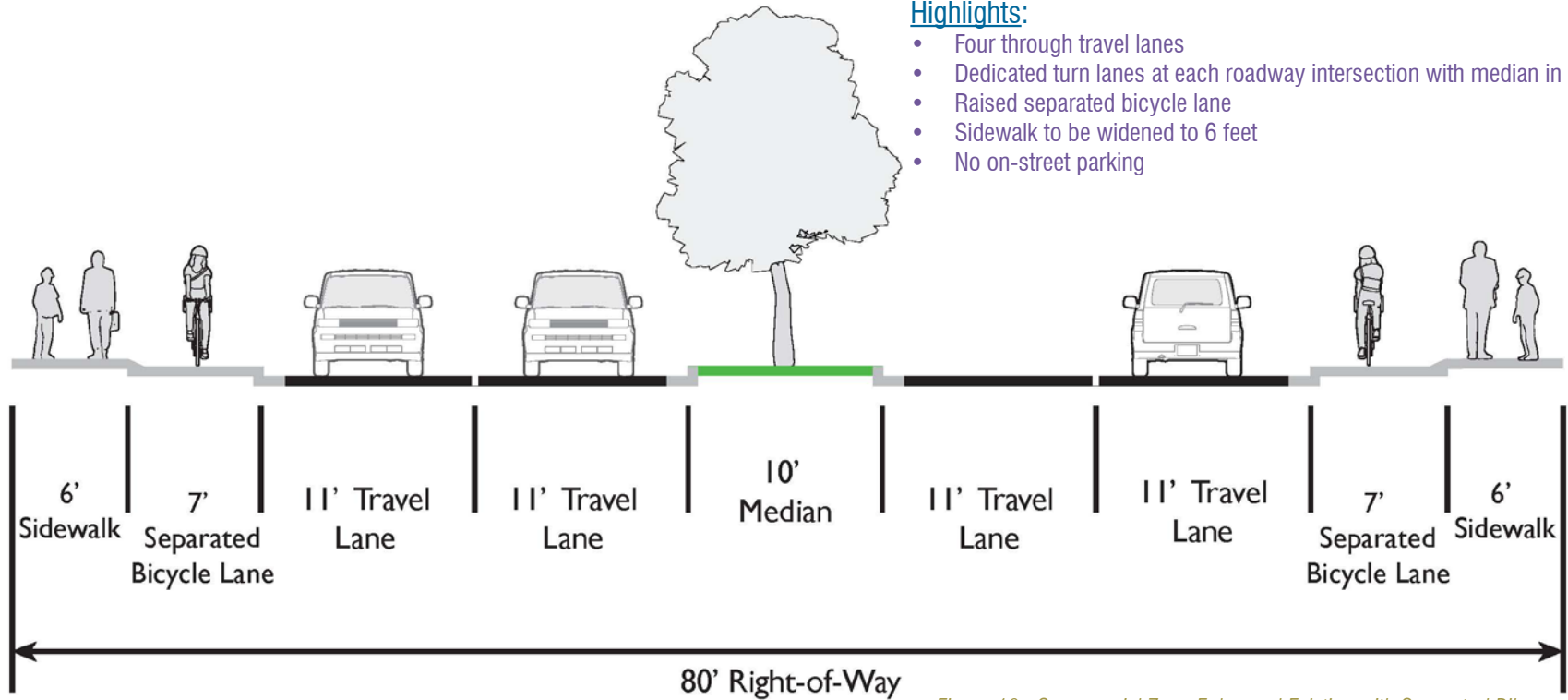


Figure 16: Commercial Zone Enhanced Existing with Separated Bikeway - Section

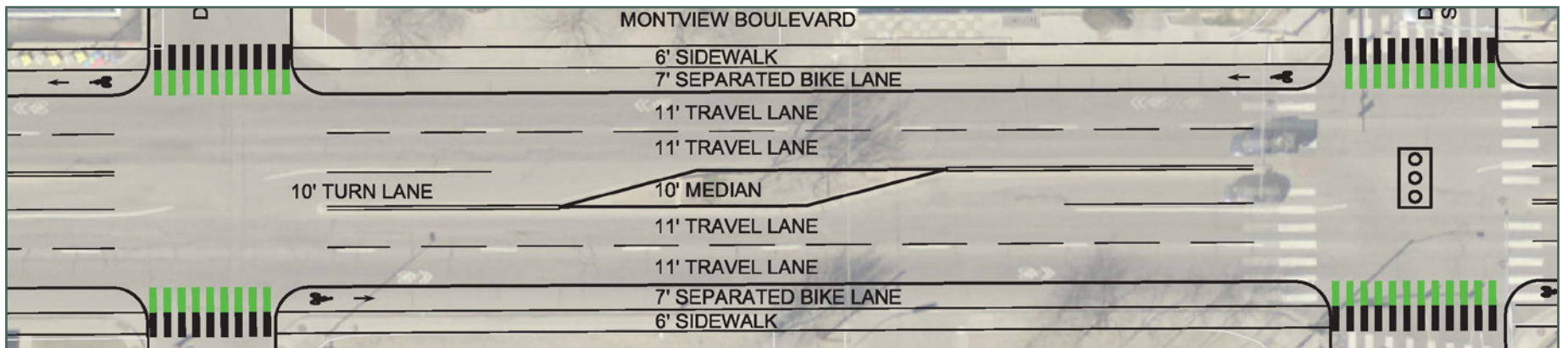


Figure 17: Commercial Zone Enhanced Existing with Separated Bikeway - Plan

West Residential Zone Enhanced Existing with Separated Bikeway

Highlights:

- Four through travel lanes
- Dedicated turn lanes at each roadway intersection with median in between
- Raised separated bicycle lane
- Sidewalk to be widened to 6 feet
- No on-street parking

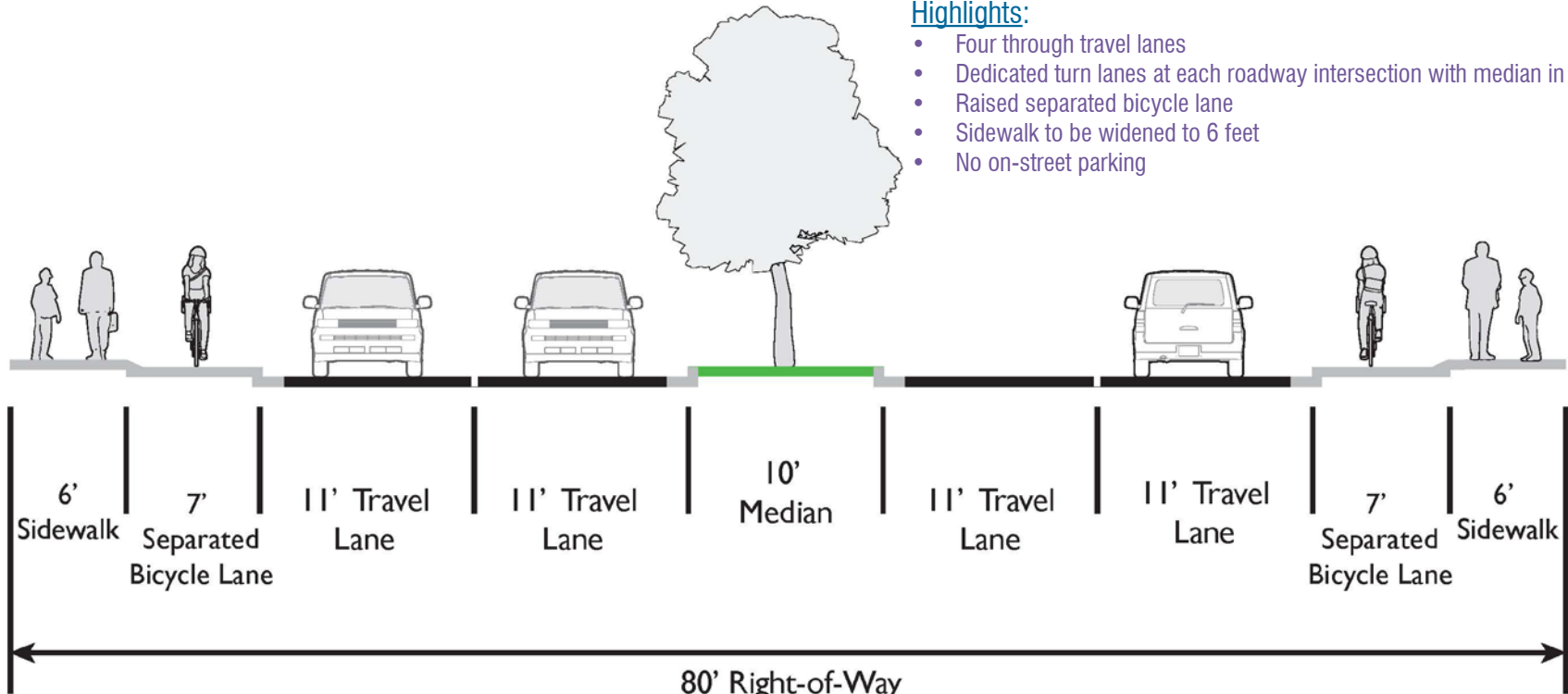


Figure 18: West Residential Zone Enhanced Existing with Separated Bikeway - Section

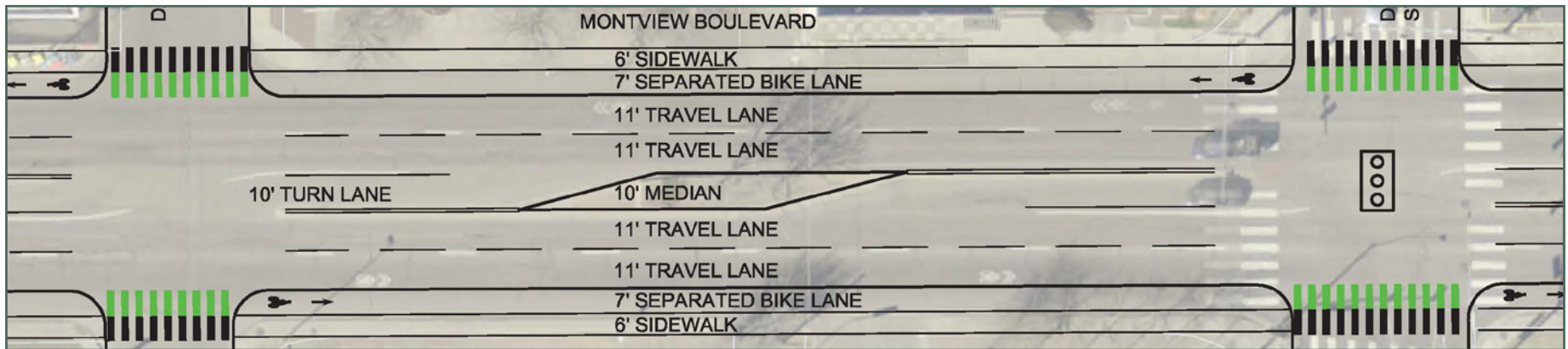


Figure 19: West Residential Zone Enhanced Existing with Separated Bikeway - Plan

West Residential Zone Mixed Bike and Pedestrian

Highlights:

- Four through travel lanes
- Dedicated turn lanes at each roadway intersection with median in between
- Bicycle and pedestrian facilities are combined to create an 11' multi-use path
- Bicycles could travel in both directions
- No on-street parking

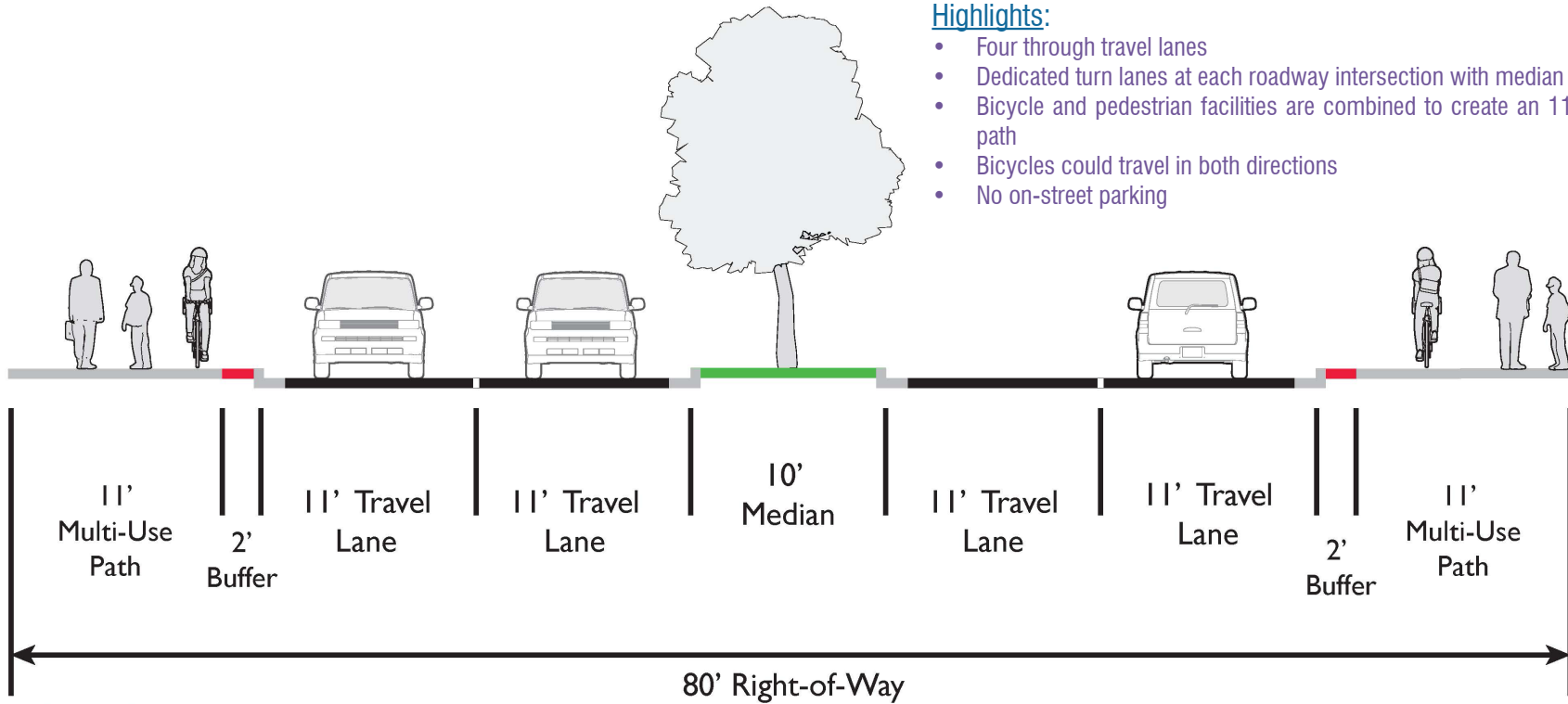


Figure 20: West Residential Zone Mixed Bike and Pedestrian - Section

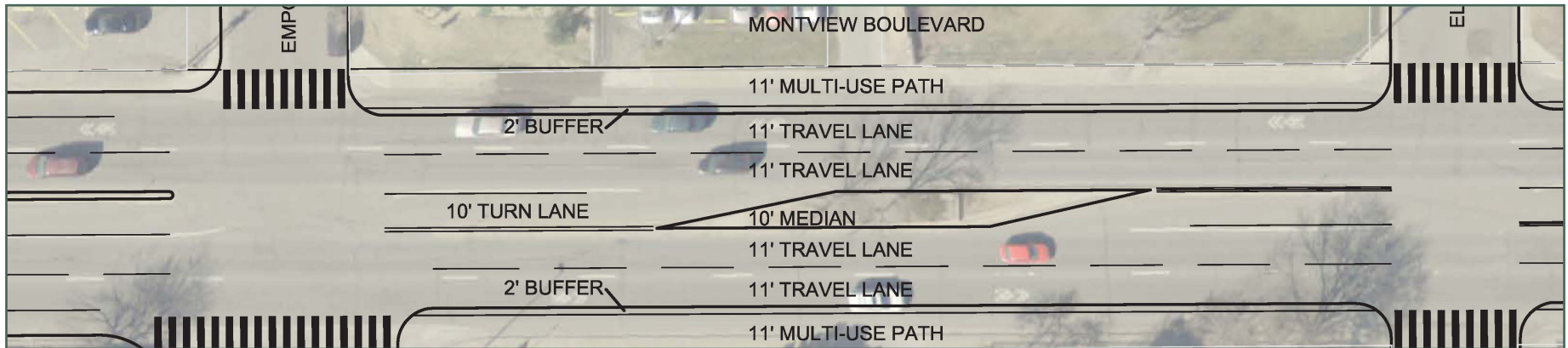


Figure 21: West Residential Zone Mixed Bike and Pedestrian - Plan

East Residential Zone Buffered Bicycle Lane

Highlights:

- Reduced through travel lanes
- Maintains center left turn lane
- Bicycle lane has buffer from travel lane and on-street parking
- Landscape buffer can be replaced with a parking lane and bus pull-out

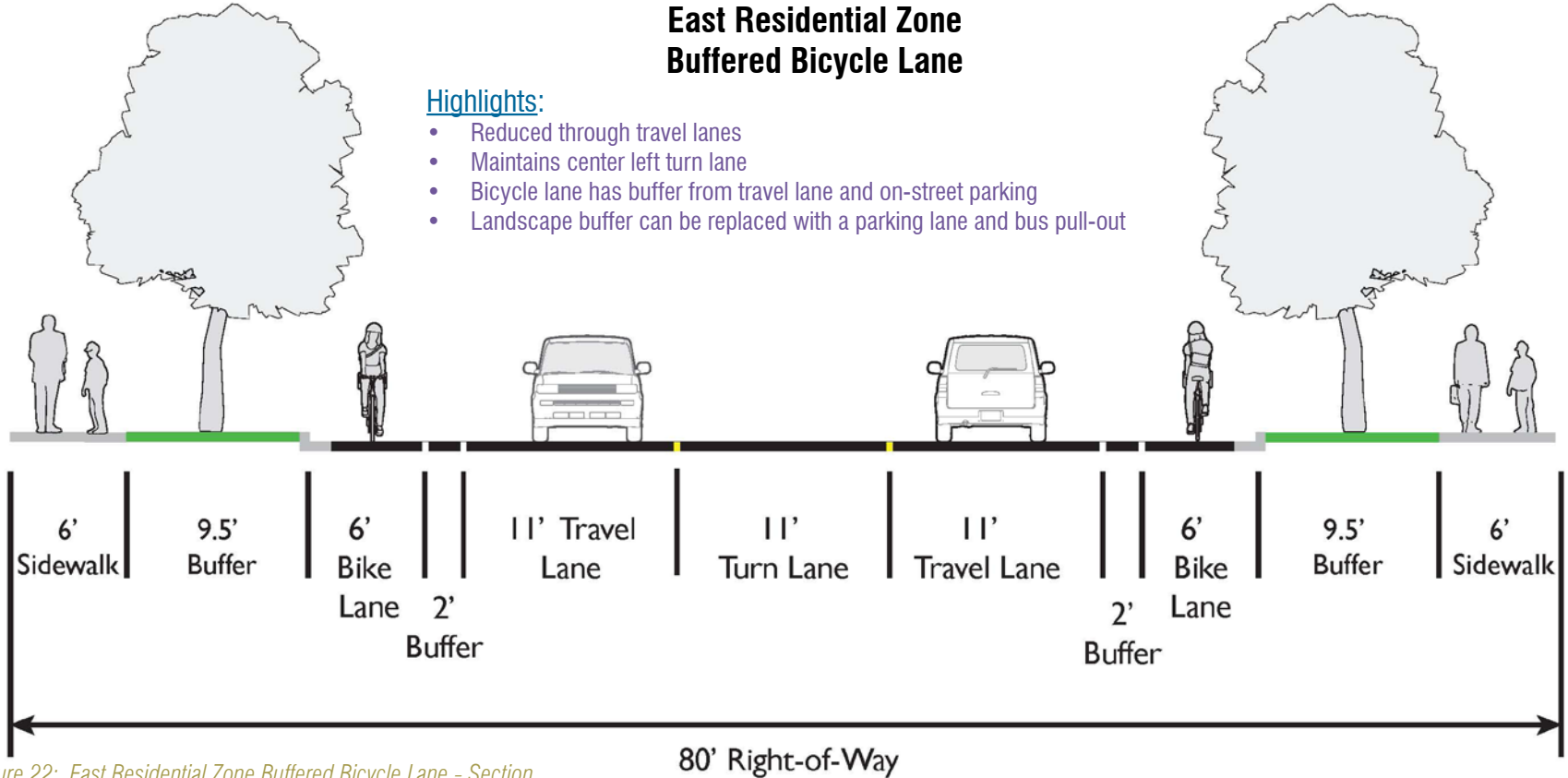


Figure 22: East Residential Zone Buffered Bicycle Lane - Section

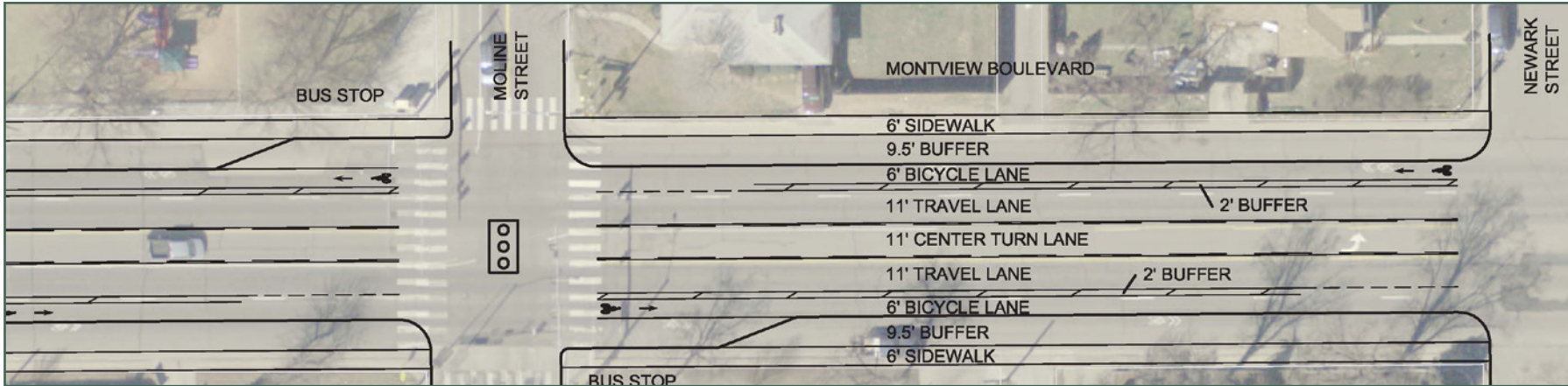


Figure 23: East Residential Zone Buffered Bicycle Lane - Plan

East Residential Zone Road Diet with Separated Bikeway

Highlights:

- Reduced through travel lanes
- Maintains center left turn lane
- Raised separated bicycle lane
- Wide tree lawn between travel lane and bicycle facility; can be reduced to provide on-street parking or bus pull-outs were needed

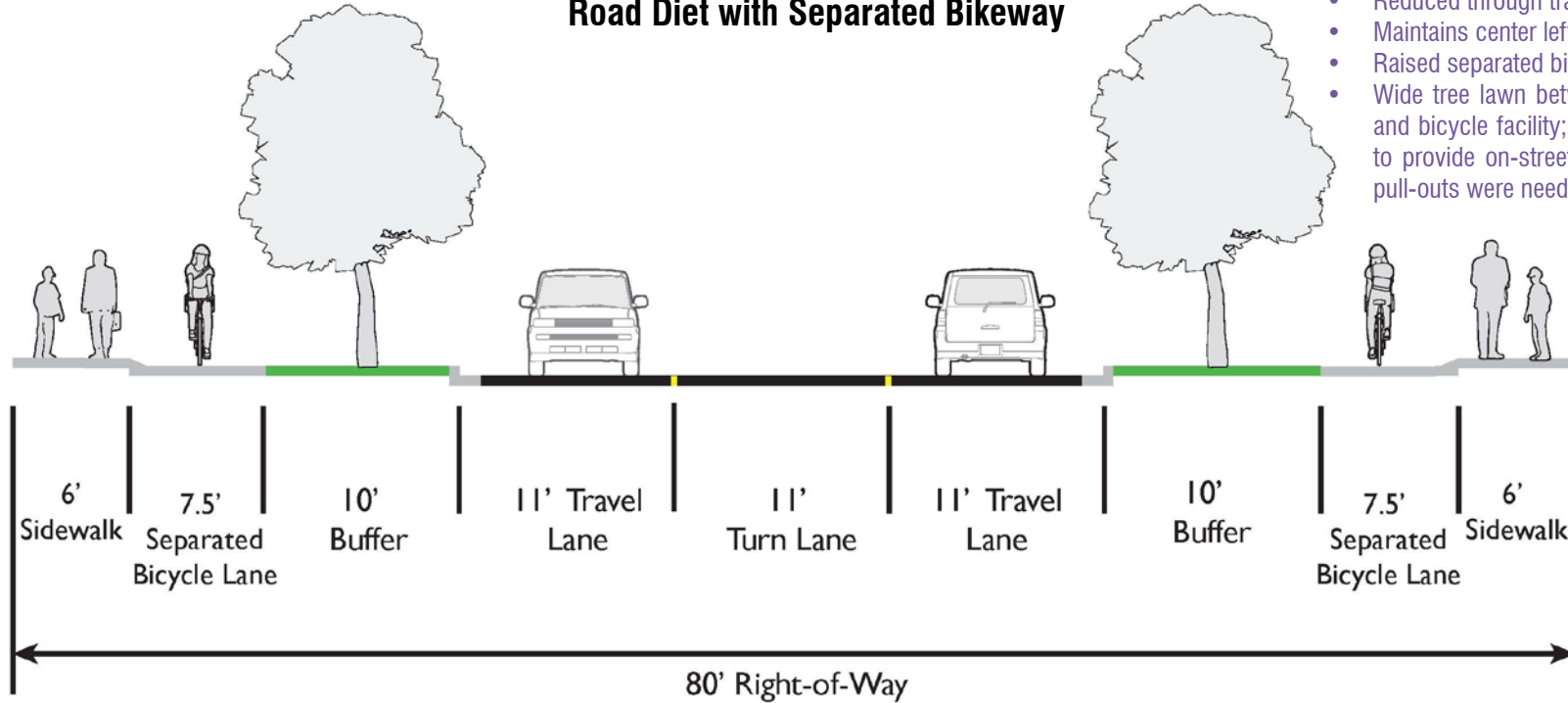


Figure 24: East Residential Zone Road Diet with Separated Bikeway - Section

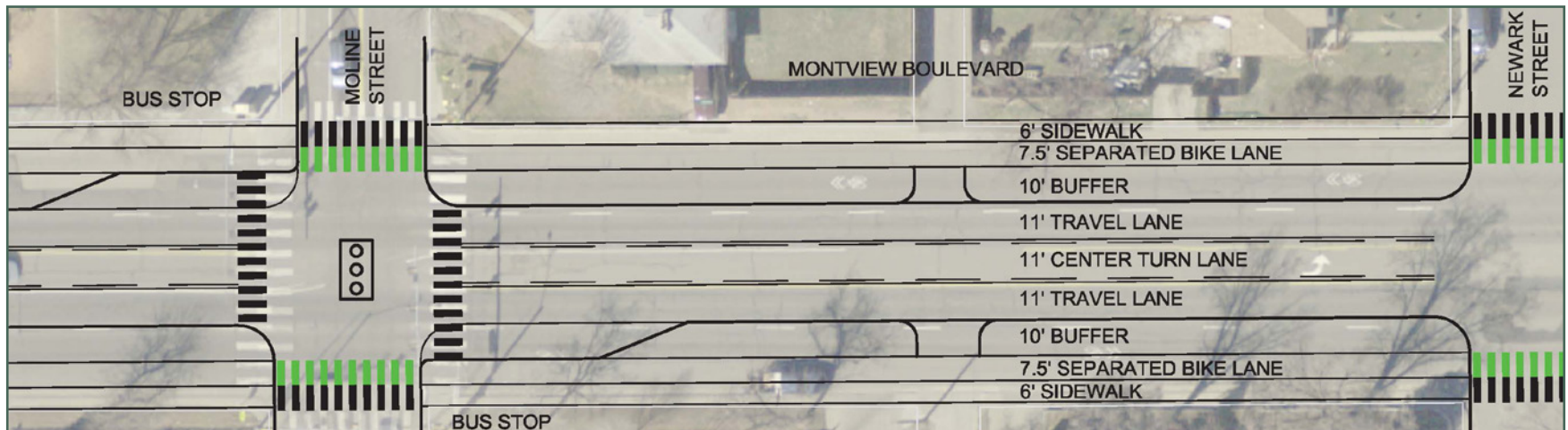


Figure 25: East Residential Zone Road Diet with Separated Bikeway - Plan

PREFERRED CROSS SECTIONS

By Zone

By consensus of the public surveys and project team workshop discussions, the separated bike

lane was preferred for both the west and east zones, with the major difference being the reduced travel lanes to the east with no median but a short-

er distance to cross for pedestrians.

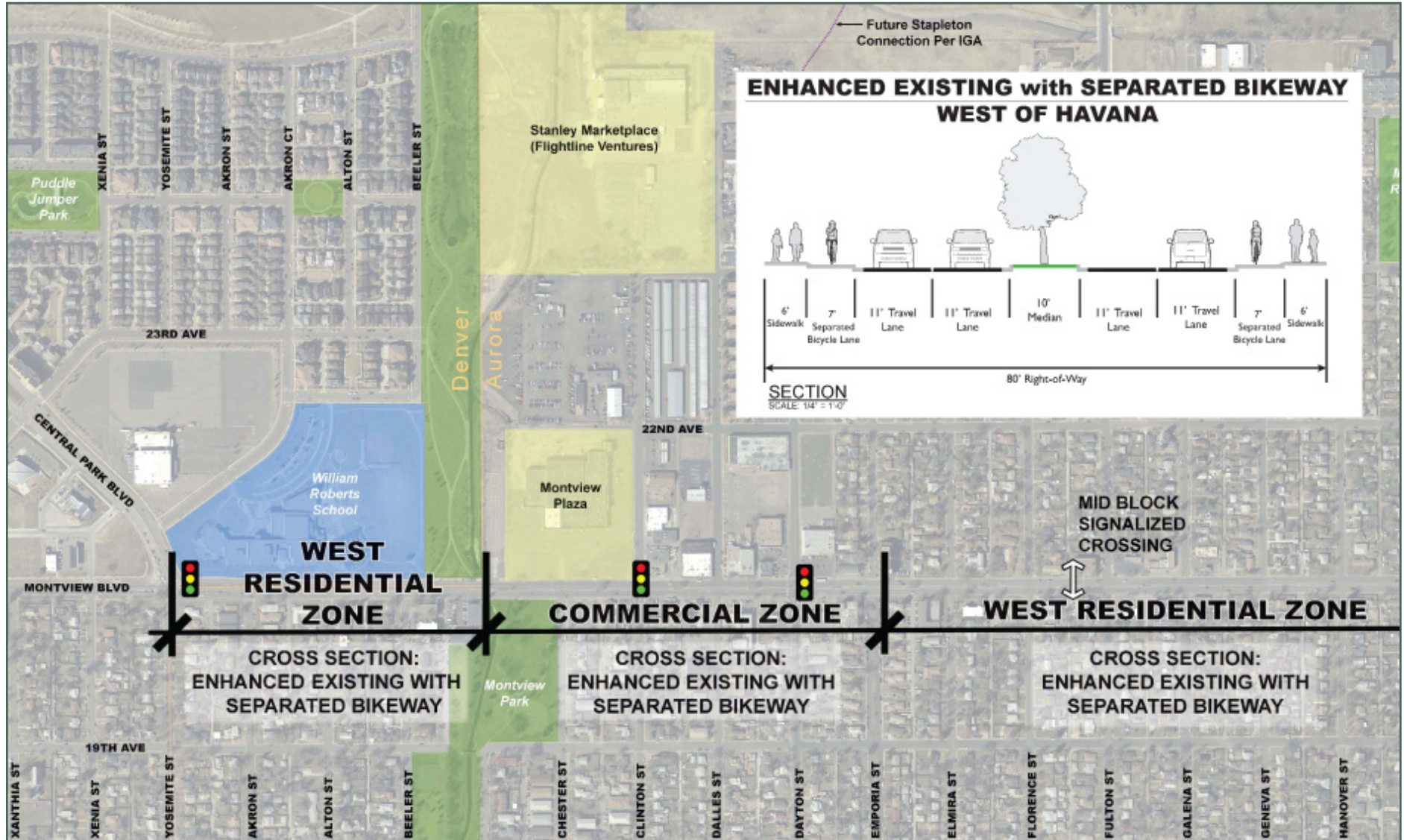


Figure 26: Corridor Zones and Preferred Cross Section - West of Havana

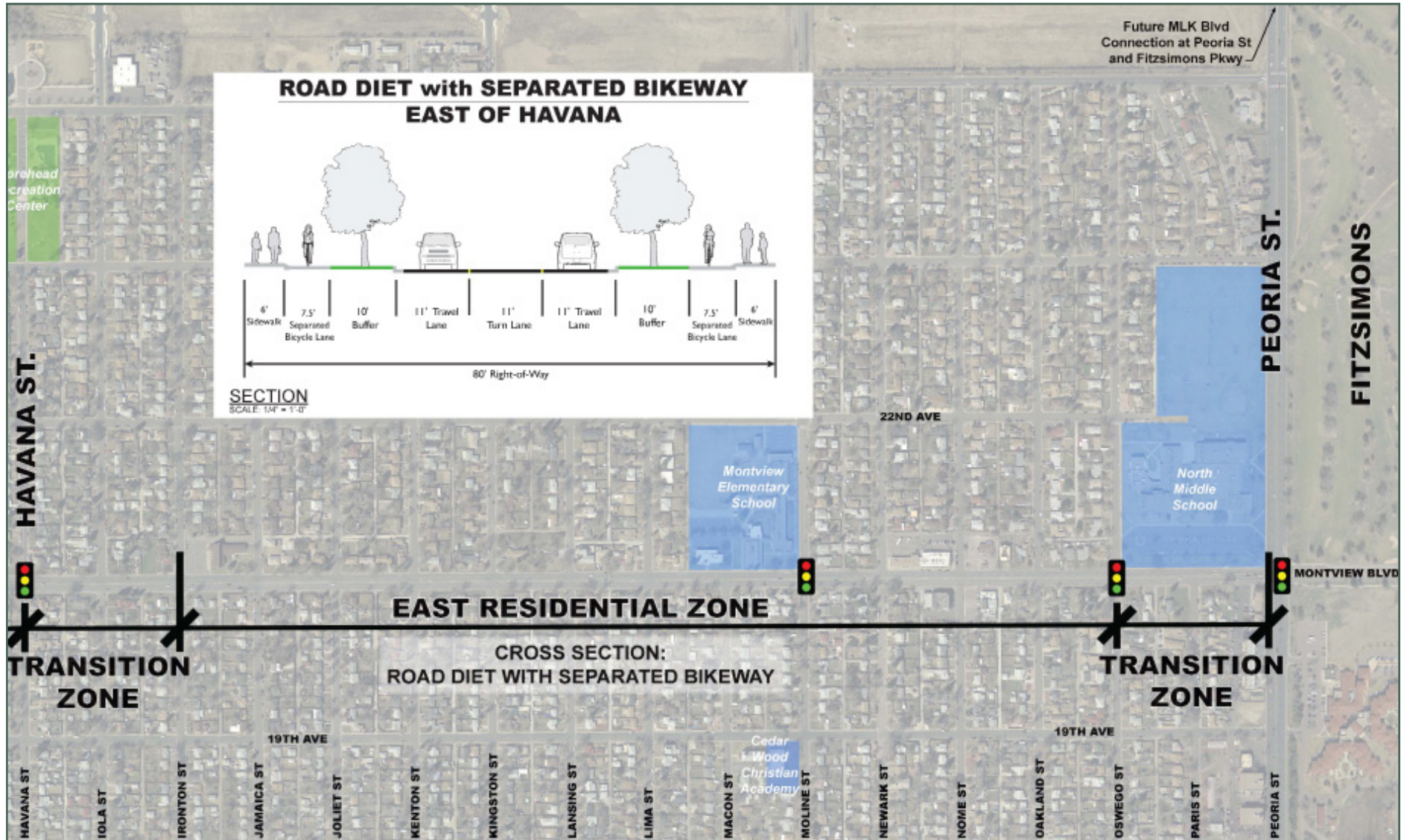


Figure 27: Corridor Zones and Preferred Cross Section - East of Havana

Transitions

With the goal of achieving a smooth transition between a three- and four-lane typical section, the following concept was developed. The transition from three to four lanes would occur at Iola Street, and from four to three lanes at Ironton Street with a right-turn only lane.

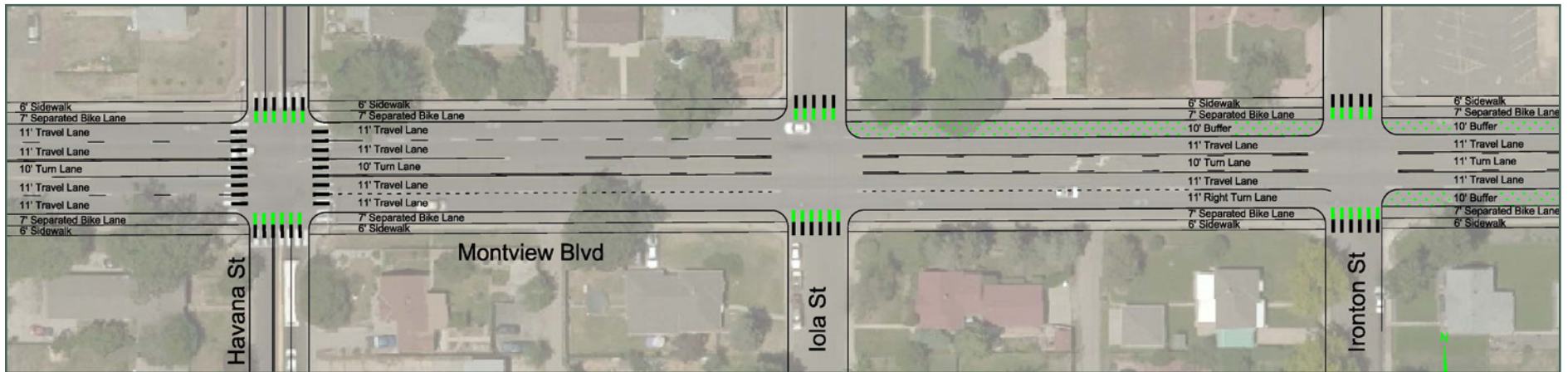


Figure 28: Transition - 5 Lane to 3 Lane Separated Bike Lane

Phasing

There are a number of phasing options available to implement the preferred alternatives for Montview Boulevard. The proposed phasing presented in this section is just one of those options. Depending on availability of funding, timing of adjacent projects, or any number of other constraints, the break lines between phases can be easily modified. It is also possible to use striping to provide interim improvements if the City would like to provide an improved bicycle facility while the full funding is being secured.

With the preliminary nature of this Corridor Study, an opinion of probable cost was developed for both of the preferred alternatives based on a typical block length of 330 feet and the resulting hard cost compiled into a cost per linear foot of roadway. This form of creating an opinion of probable cost is very useful at the corridor planning level as it allows the phasing boundary lines to be easily adjusted and the opinion of probable cost of the phase to be quickly recalculated. It should be noted that Matrix Design Group, Inc., does not guarantee or warranty the cost opinions shown below. Opinions are provided using standard unit costing and gross estimating techniques based on knowledge of this corridor and experience on similar projects.

The preferred alternative for the [West Residential and Commercial Zones](#) is the Enhanced Existing with Separated Bikeway and the hard cost is anticipated to cost \$1,407 per linear foot of roadway in 2015 dollars where there is an existing median and \$1,357 per linear foot of roadway in 2015 dollars where there is an existing two-way left turn lane.

- This linear foot cost is the hard cost for the linear roadway improvements only. Traffic signal modifications, general conditions, mobilization, traffic control, contingency, and design soft costs are in addition to this linear hard cost and are discussed later with each suggested phase of construction.
- This cost includes the elements shown in the preferred alternative along with demolition of the existing 80' right-of-way, removal of 35' of the north and south side street tie-ins, modifications to the existing storm inlets and laterals, and irrigation and landscaping of the proposed medians.
- The assumed pavement sections identified in Appendix D will need to be confirmed during 30% design.
- It is assumed that the existing street lights at each intersection can remain and that no additional lighting is needed. This assumption should be confirmed during 30% design by a lighting consultant.
- Median landscaping is included in the opinion of probable cost at \$25 per square foot for planning purposes based on recent experience from City of Aurora Parks, Recreation,

and Open Space. This unit cost can vary significantly depending on the landscape plan so the unit cost should be confirmed during 30% design.

- It is assumed that maintenance of the proposed median will be provided outside of the scope of this opinion of probable cost. Although the cost of maintenance is not included in this cost model, an entity should be identified for maintenance with sufficient budget before landscaping is constructed.
- It should also be noted that additional storm inlets and a larger storm sewer pipe within Montview Boulevard may be needed due to the flowlines being lowered 5-inches. This aspect of the design should be confirmed during 30% design.
- Cost detail can be seen in Appendix D.

The preferred alternative for the [East Residential Zone](#) is the Road Diet with Separated Bikeway and the hard cost is anticipated to cost \$1,711 per linear foot of roadway in 2015 dollars.

- This linear foot cost is the hard cost for the linear roadway improvements only. Traffic signal modifications, general conditions, mobilization, traffic control, contingency, and design soft costs are in addition to this linear hard cost and are discussed later with each suggested phase of construction.
- The assumed pavement sections identified in Appendix D will need to be confirmed during 30% design.

- This cost includes the elements shown in the preferred alternative along with demolition of the existing 80' right-of-way, removal of 35' of the north and south side street tie-ins, modifications to the existing storm inlets and laterals, resetting the street lights and irrigation and landscaping of the proposed tree lawns.
- Tree lawn landscaping is included in the opinion of probable cost at \$25 per square foot for planning purposes based on recent experience from City of Aurora Parks, Recreation, and Open Space. This unit cost can vary significantly depending on the landscape plan so the unit cost should be confirmed during 30% design.
- It is assumed that maintenance of the proposed tree lawns will be provided outside of the scope of this cost model. Although the cost of maintenance is not included in this cost model, an entity should be identified for

maintenance with sufficient budget before landscaping is constructed.

- It should also be noted that additional storm inlets and a larger storm sewer pipe within Montview Boulevard may be needed due to the flowlines being lowered 12-inches. This aspect of the design should be confirmed during 30% design.
- Cost detail can be seen in Appendix D.

Phase 1 – West Commercial between the newly constructed Westerly Creek Bridge and Dayton Street

The City of Aurora has identified this segment of Montview Boulevard as Phase 1 due to its very high impact on economic development and the high interest level of nearby business owners. With an approximate length of 1,300 feet, this segment is anticipated to cost **\$3.48 million** af-

ter including traffic signal modifications at Clinton Street and at Dayton Street and after accounting for 10% general conditions, 5% mobilization, 25% contingency, and 20% design soft costs.

Phase 2 – West Residential from Yosemite Street to the newly constructed Westerly Creek Bridge

This segment is identified as Phase 2 to improve the entrance to the City of Aurora. With the Westerly Creek Bridge project and what has been identified as Phase 1 of the Montview Corridor, this is the missing segment to truly welcome all users to the City of Aurora and highlight the new entry monument being constructed with the Westerly Creek Bridge project. This segment has an approximate length of 1,350 feet and is anticipated to cost **\$3.30 million** after including traffic signal modifications at Yosemite Street and after accounting

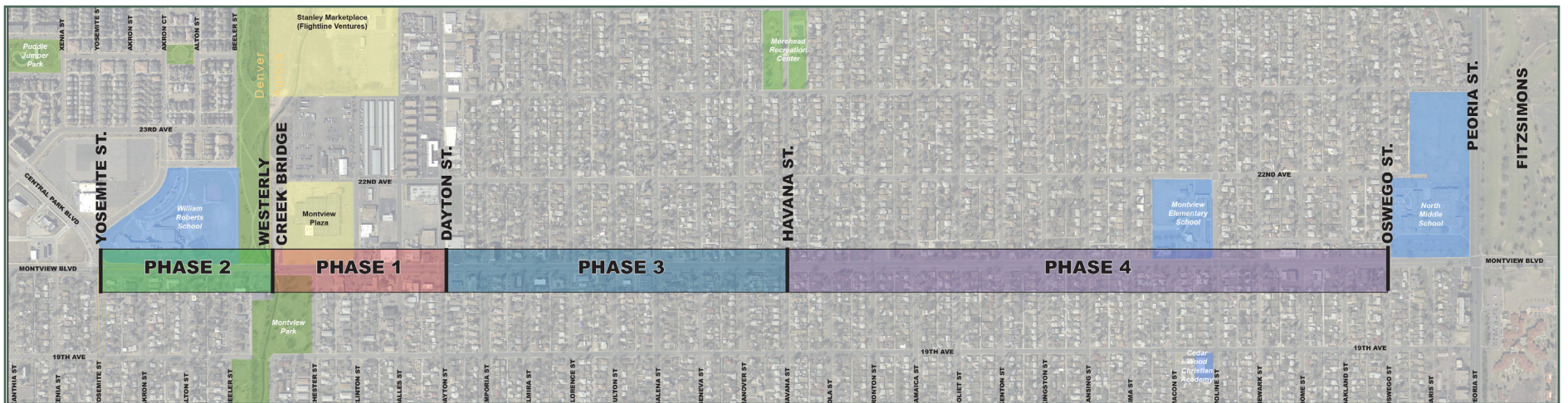


Figure 29: Corridor Phasing

for 10% general conditions, 5% mobilization, 25% contingency, and 20% design soft costs.

Phase 3 – West Commercial and Residential from Dayton Street to Havana Street

This phase will complete the Enhanced Existing with Separated Bikeway preferred alternative. By placing this segment as Phase 3 rather than a later phase, it will allow more time for the build-out of Fitzsimons and permit the City to validate some of the traffic projection assumptions before committing dollars to the East Residential preferred alternative of Road Diet with Separated Bikeway. With an approximate length of 2,650 feet, this segment is anticipated to cost **\$6.59 million** after including pedestrian signal modifications east of Florence Street, traffic signal modifications at Havana Street and after accounting for 10% general conditions, 5% mobilization, 25% contingency, and 20% design soft costs.

Phase 4 – East Residential from Havana Street to Oswego Street

This phase will complete the Montview Boulevard Corridor. It is recommended that this segment be constructed in one phase since it involves removing a travel lane in each direction. If this segment needs to be broken into two or three smaller projects, it is recommended that the portions that are not constructed be striped for 3-lanes so that consistent laneage is provided along the entire length. It is also assumed that the future inter-

section improvements at Montview Boulevard & Peoria Street will also make pedestrian and bicycle improvements between Peoria Street and Oswego Street and as such, this segment is not included in the cost model. This segment is approximately 4,630 feet long and is anticipated to cost **\$13.75 million** after including traffic signal modifications at Moline Street and at Oswego Street and after accounting for 10% general conditions, 5% mobilization, 25% contingency, and 20% design soft costs.

Potential Buffered Bike Lane Interim Phase

As an option to provide an improved bicycle facility in the interim while funding is being secured for the preferred alternative, it is possible to stripe a buffered bike lane with minimal changes to the existing lane striping. This would involve restricting parking along the corridor, removing the existing bike sharrow pavement markings, and then converting the 8' parking lane to a 6' bike lane with a 2' painted buffer. The anticipated hard cost for this project is approximately \$20 per linear foot of roadway in 2015 dollars so buffered bike lanes could be added to the entire 2-mile corridor for roughly **\$415,000**. Please see below for assumptions.

- This linear foot cost includes 10% general conditions, 5% mobilization, 5% traffic control, 15% contingency, and 20% design soft costs. The contingency is lower than the preferred alternatives because there are fewer unknowns in a striping project.

- This cost includes a 6" bike lane line, 6" white travel lane edge line, dotted bike lane line and dotted edge line at alley crossings and 50' from intersection approaches, two bike lane symbols per bike lane per block, and a bike lane sign every other block.
- Where the outside through lane plus parking lane is less than 18', the dashed lane line should be removed and the left through lane narrowed to provide the 18' needed to provide a 10' through lane, 2' buffer, and 6' bike lane. The buffer can be narrowed if needed, but should not go narrower than 1.5'. A line item has been included in the opinion of probable cost to make this adjustment where needed.
- The cost also includes a line item to adjust traffic signal timing if needed; however, depending on the desired operations, identified traffic signal modifications may be necessary at additional cost.
- Cost detail can be seen in Appendix D.

Potential Scope Additions

As identified in the traffic section of this document and as discussed with City Staff, there are some potential scope additions that could be provided along the corridor if funding is available. These items are discussed below and the cost detail is included in Appendix D. Each opinion of probable cost includes 10% general conditions, 5% mobilization, 25% contingency, and 20% design soft costs.

- A new traffic signal installed at Fulton Street plus the removal of the existing pedestrian sig-

nal west of Fulton Street to improve platooning and provide an additional point of signalized access to Montview Boulevard. This scope would cost approximately \$400,000 in 2015 dollars. Please see the Traffic Analysis section of this report for additional information.

- A new traffic signal installed at Kingston Street to improve platooning, provide an additional point of signalized access to Montview Boulevard, and provide an additional signalized pedestrian crossing of Montview Boulevard. This scope would cost approximately \$375,000 in 2015 dollars. Please see the Traffic Analysis section of this report for additional information.
- Upgrade the traffic existing traffic signals at Clinton Street, Dayton Street, Havana Street, Moline Street and Oswego Street. This scope would cost approximately \$400,000 per intersection in 2015 dollars. This includes removal of the existing traffic signal and installation of the new traffic signal. If all five intersections were upgraded, the total cost would be approximately \$2.0 million.
- New street lights along the full length of the corridor including the addition of street lights mid-block to reduce dark spots and improve lighting where alleys cross the proposed bike and pedestrian facilities. This scope would cost approximately \$1.2 million in 2015 dollars.

APPENDICES

Appendix A: Montview Traffic Counts

Appendix B: Montview Traffic LOS Output

Appendix C: Survey Questions and Results

Appendix D: Cost Estimate

APPENDIX A

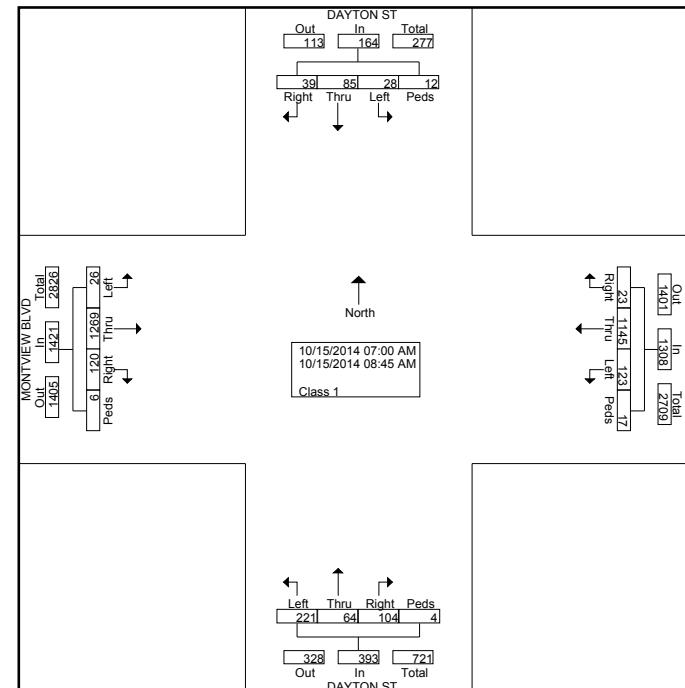
Appendix A: Montview Traffic Counts

All Traffic Data Services, Inc.
 9660 W 44th Ave
 Wheat Ridge, CO 80033
 www.alltrafficdata.net

File Name : #1 DAYTON&MONTVIEWAM
 Site Code : 00000000
 Start Date : 10/15/2014
 Page No : 1

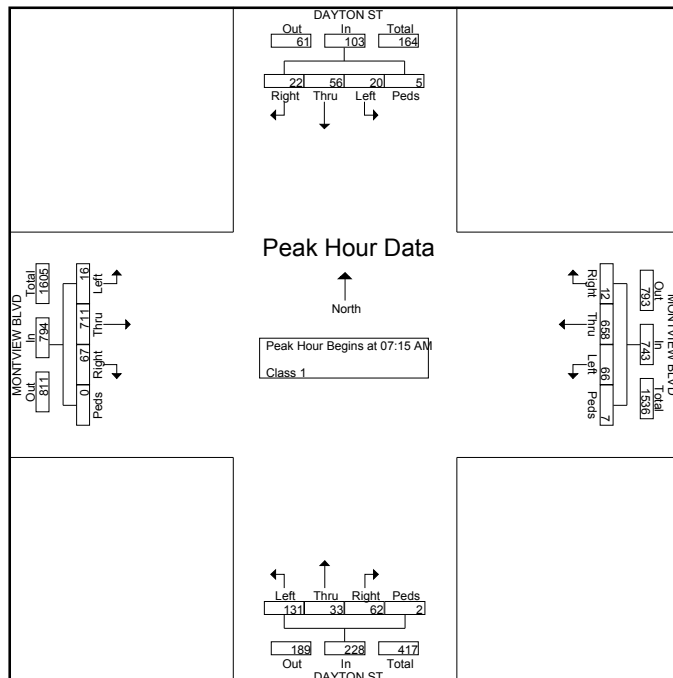
Groups Printed- Class 1

Start Time	DAYTON ST Southbound				MONTVIEW BLVD Westbound				DAYTON ST Northbound				MONTVIEW BLVD Eastbound				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	2	10	1	0	4	163	14	1	7	12	25	1	9	141	3	0	393
07:15 AM	2	9	3	0	3	168	12	1	14	5	39	0	14	156	4	0	430
07:30 AM	5	13	5	0	2	197	18	4	23	11	36	0	21	199	3	0	537
07:45 AM	8	21	6	1	1	155	24	0	12	9	31	0	13	182	5	0	468
Total	17	53	15	1	10	683	68	6	56	37	131	1	57	678	15	0	1828
08:00 AM	7	13	6	4	6	138	12	2	13	8	25	2	19	174	4	0	433
08:15 AM	7	5	2	0	4	129	14	3	8	8	32	1	15	155	5	3	391
08:30 AM	3	7	4	3	1	95	20	6	12	4	14	0	18	135	2	3	327
08:45 AM	5	7	1	4	2	100	9	0	15	7	19	0	11	127	0	0	307
Total	22	32	13	11	13	462	55	11	48	27	90	3	63	591	11	6	1458
Grand Total	39	85	28	12	23	1145	123	17	104	64	221	4	120	1269	26	6	3286
Approch %	23.8	51.8	17.1	7.3	1.8	87.5	9.4	1.3	26.5	16.3	56.2	1	8.4	89.3	1.8	0.4	
Total %	1.2	2.6	0.9	0.4	0.7	34.8	3.7	0.5	3.2	1.9	6.7	0.1	3.7	38.6	0.8	0.2	



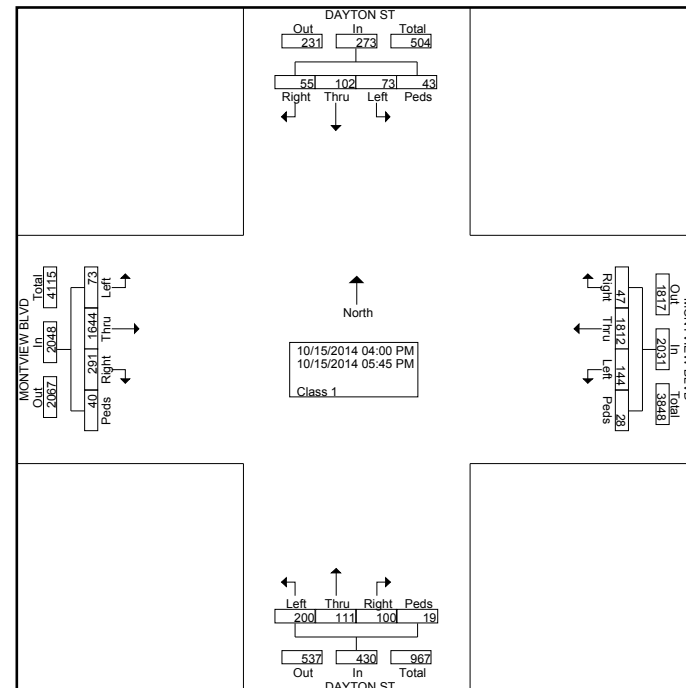
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 Start Date : 10/15/2014
 Page No : 2

Start Time	DAYTON ST Southbound					MONTVIEW BLVD Westbound					DAYTON ST Northbound					MONTVIEW BLVD Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	2	9	3	0	14	3	168	12	1	184	14	5	39	0	58	14	156	4	0	174	430
07:30 AM	5	13	5	0	23	2	197	18	4	221	23	11	36	0	70	21	199	3	0	223	537
07:45 AM	8	21	6	1	36	1	155	24	0	180	12	9	31	0	52	13	182	5	0	200	468
08:00 AM	7	13	6	4	30	6	138	12	2	158	13	8	25	2	48	19	174	4	0	197	433
Total Volume	22	56	20	5	103	12	658	66	7	743	62	33	131	2	228	67	711	16	0	794	1868
% App. Total	21.4	54.4	19.4	4.9		1.6	88.6	8.9	0.9		27.2	14.5	57.5	0.9		8.4	89.5	2	0		
PHF	.688	.667	.833	.313	.715	.500	.835	.688	.438	.840	.674	.750	.840	.250	.814	.798	.893	.800	.000	.890	.870



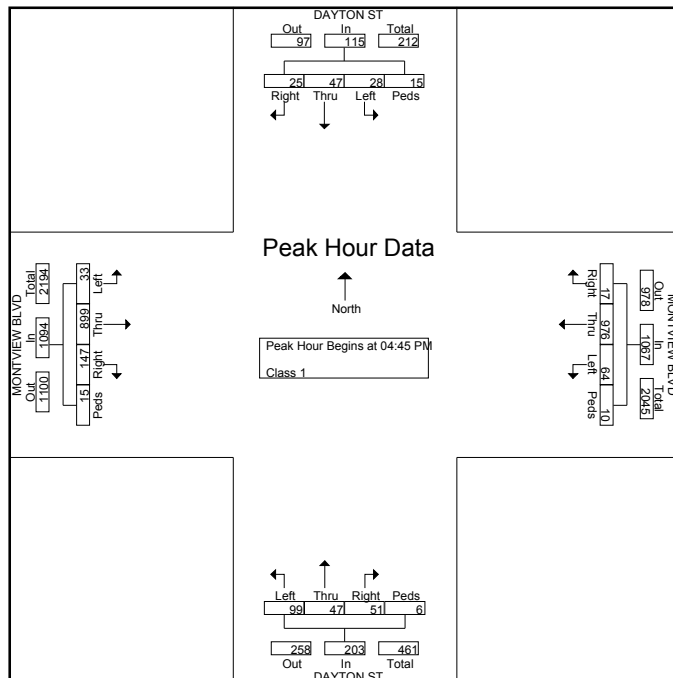
Groups Printed- Class 1

Start Time	DAYTON ST Southbound				MONTVIEW BLVD Westbound				DAYTON ST Northbound				MONTVIEW BLVD Eastbound				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	8	17	10	6	13	191	20	4	11	23	32	2	28	164	16	0	545
04:15 PM	10	11	16	10	7	211	22	7	14	14	14	2	39	208	9	6	600
04:30 PM	11	18	7	8	6	229	22	5	9	14	26	6	38	178	4	10	591
04:45 PM	4	12	7	2	8	263	19	1	15	11	27	3	35	217	9	4	637
Total	33	58	40	26	34	894	83	17	49	62	99	13	140	767	38	20	2373
05:00 PM	6	11	7	8	0	241	18	5	11	15	18	0	39	222	8	4	613
05:15 PM	9	14	5	4	0	261	14	3	12	9	16	2	32	230	6	4	621
05:30 PM	6	10	9	1	9	211	13	1	13	12	38	1	41	230	10	3	608
05:45 PM	1	9	12	4	4	205	16	2	15	13	29	3	39	195	11	9	567
Total	22	44	33	17	13	918	61	11	51	49	101	6	151	877	35	20	2409
Grand Total	55	102	73	43	47	1812	144	28	100	111	200	19	291	1644	73	40	4782
Approch %	20.1	37.4	26.7	15.8	2.3	89.2	7.1	1.4	23.3	25.8	46.5	4.4	14.2	80.3	3.6	2	
Total %	1.2	2.1	1.5	0.9	1	37.9	3	0.6	2.1	2.3	4.2	0.4	6.1	34.4	1.5	0.8	



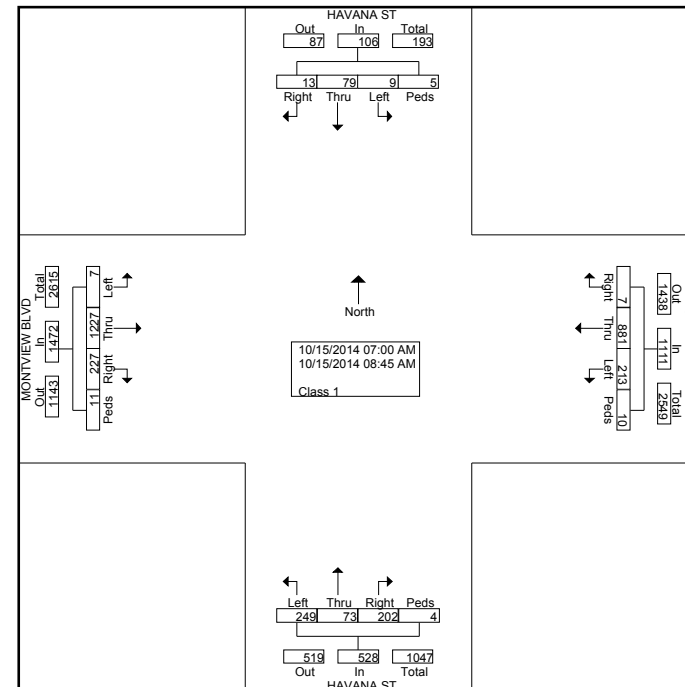
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 Start Date : 10/15/2014
 Page No : 2

Start Time	DAYTON ST Southbound					MONTVIEW BLVD Westbound					DAYTON ST Northbound					MONTVIEW BLVD Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	4	12	7	2	25	8	263	19	1	291	15	11	27	3	56	35	217	9	4	265	637
05:00 PM	6	11	7	8	32	0	241	18	5	264	11	15	18	0	44	39	222	8	4	273	613
05:15 PM	9	14	5	4	32	0	261	14	3	278	12	9	16	2	39	32	230	6	4	272	621
05:30 PM	6	10	9	1	26	9	211	13	1	234	13	12	38	1	64	41	230	10	3	284	608
Total Volume	25	47	28	15	115	17	976	64	10	1067	51	47	99	6	203	147	899	33	15	1094	2479
% App. Total	21.7	40.9	24.3	13		1.6	91.5	6	0.9		25.1	23.2	48.8	3		13.4	82.2	3	1.4		
PHF	.694	.839	.778	.469	.898	.472	.928	.842	.500	.917	.850	.783	.651	.500	.793	.896	.977	.825	.938	.963	.973



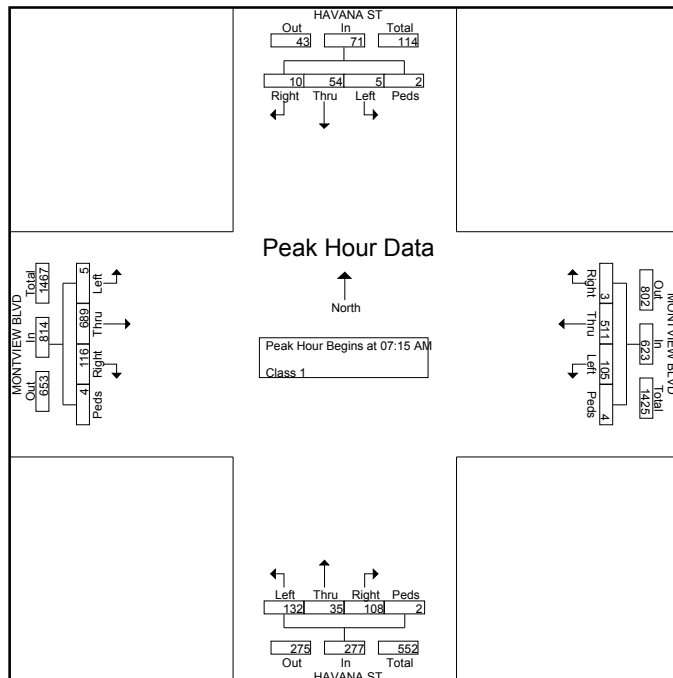
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Start Time	HAVANA ST Southbound				MONTVIEW BLVD Westbound				HAVANA ST Northbound				MONTVIEW BLVD Eastbound				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	1	9	3	1	2	105	26	4	30	6	41	0	31	134	0	4	397
07:15 AM	5	11	1	0	1	119	23	4	39	9	32	0	28	163	0	0	435
07:30 AM	0	21	3	0	1	142	28	0	35	16	42	1	32	184	3	2	510
07:45 AM	2	14	1	1	1	142	20	0	17	4	27	1	29	171	2	2	434
Total	8	55	8	2	5	508	97	8	121	35	142	2	120	652	5	8	1776
08:00 AM	3	8	0	1	0	108	34	0	17	6	31	0	27	171	0	0	406
08:15 AM	0	4	1	0	0	119	45	0	19	18	24	1	31	157	0	1	420
08:30 AM	1	7	0	0	0	71	21	0	30	5	25	1	33	127	0	2	323
08:45 AM	1	5	0	2	2	75	16	2	15	9	27	0	16	120	2	0	292
Total	5	24	1	3	2	373	116	2	81	38	107	2	107	575	2	3	1441
Grand Total	13	79	9	5	7	881	213	10	202	73	249	4	227	1227	7	11	3217
Apprch %	12.3	74.5	8.5	4.7	0.6	79.3	19.2	0.9	38.3	13.8	47.2	0.8	15.4	83.4	0.5	0.7	
Total %	0.4	2.5	0.3	0.2	0.2	27.4	6.6	0.3	6.3	2.3	7.7	0.1	7.1	38.1	0.2	0.3	



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 Page No : 2

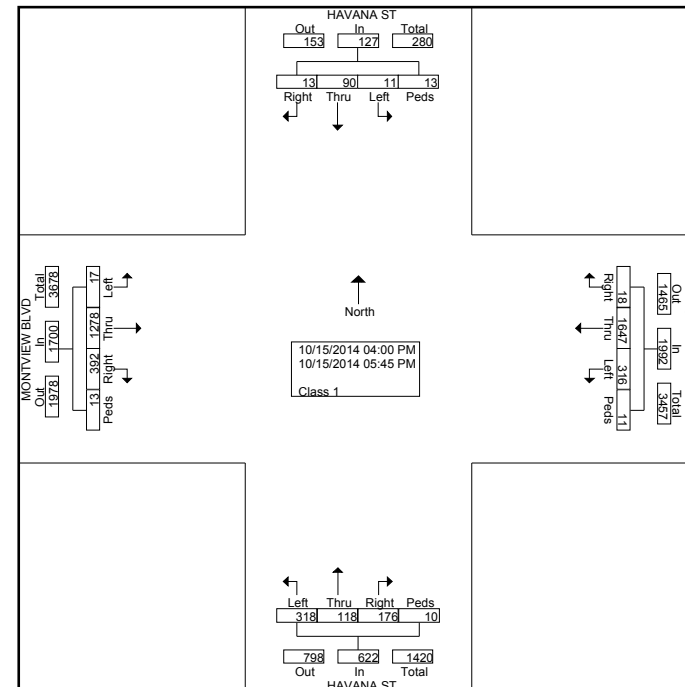
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	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	11	1	0	17	1	119	23	4	147	39	9	32	0	80	28	163	0	0	191	435
07:30 AM	0	21	3	0	24	1	142	28	0	171	35	16	42	1	94	32	184	3	2	221	510
07:45 AM	2	14	1	1	18	1	142	20	0	163	17	4	27	1	49	29	171	2	2	204	434
08:00 AM	3	8	0	1	12	0	108	34	0	142	17	6	31	0	54	27	171	0	0	198	406
Total Volume	10	54	5	2	71	3	511	105	4	623	108	35	132	2	277	116	689	5	4	814	1785
% App. Total	14.1	76.1	7	2.8		0.5	82	16.9	0.6		39	12.6	47.7	0.7		14.3	84.6	0.6	0.5		
PHF	.500	.643	.417	.500	.740	.750	.900	.772	.250	.911	.692	.547	.786	.500	.737	.906	.936	.417	.500	.921	.875



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 Page No : 1

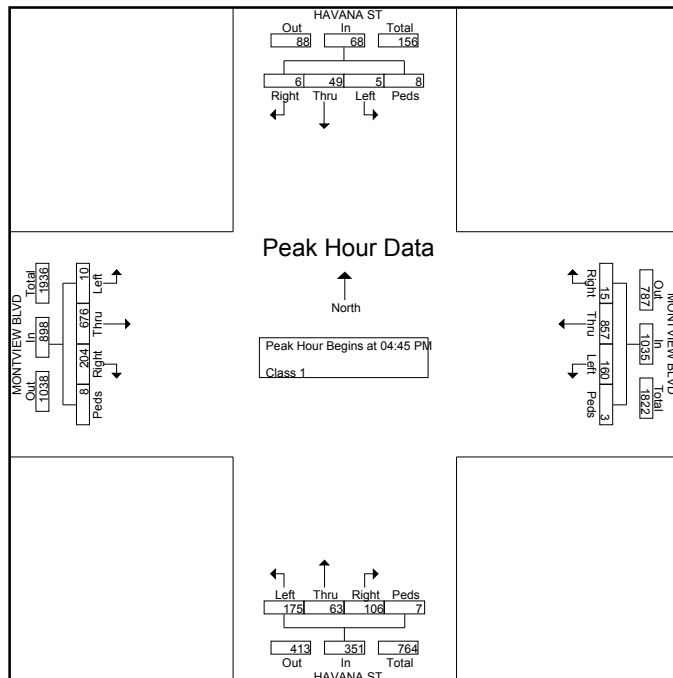
Groups Printed- Class 1

Start Time	HAVANA ST Southbound				MONTVIEW BLVD Westbound				HAVANA ST Northbound				MONTVIEW BLVD Eastbound				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	0	10	3	2	0	200	42	2	14	14	38	1	45	142	2	1	516
04:15 PM	3	9	2	1	0	192	32	6	24	16	46	1	55	149	2	3	541
04:30 PM	3	14	1	2	2	215	51	0	14	15	33	1	51	150	2	1	555
04:45 PM	1	12	1	2	2	212	34	1	23	13	38	1	37	155	4	0	536
Total	7	45	7	7	4	819	159	9	75	58	155	4	188	596	10	5	2148
05:00 PM	0	17	0	6	2	234	39	2	18	20	46	1	48	175	3	8	619
05:15 PM	2	12	3	0	6	223	51	0	36	15	48	5	51	178	2	0	632
05:30 PM	3	8	1	0	5	188	36	0	29	15	43	0	68	168	1	0	565
05:45 PM	1	8	0	0	1	183	31	0	18	10	26	0	37	161	1	0	477
Total	6	45	4	6	14	828	157	2	101	60	163	6	204	682	7	8	2293
Grand Total	13	90	11	13	18	1647	316	11	176	118	318	10	392	1278	17	13	4441
Apprch %	10.2	70.9	8.7	10.2	0.9	82.7	15.9	0.6	28.3	19	51.1	1.6	23.1	75.2	1	0.8	
Total %	0.3	2	0.2	0.3	0.4	37.1	7.1	0.2	4	2.7	7.2	0.2	8.8	28.8	0.4	0.3	



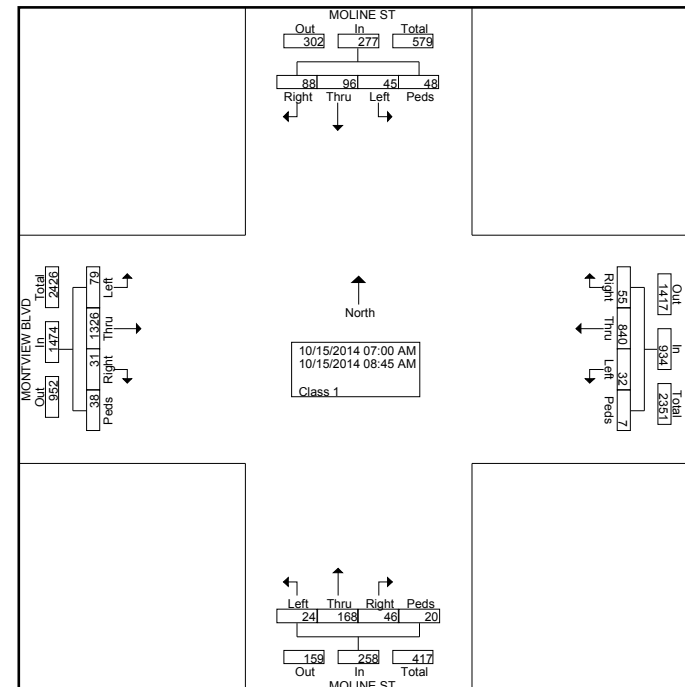
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	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	12	1	2	16	2	212	34	1	249	23	13	38	1	75	37	155	4	0	196	536
05:00 PM	0	17	0	6	23	2	234	39	2	277	18	20	46	1	85	48	175	3	8	234	619
05:15 PM	2	12	3	0	17	6	223	51	0	280	36	15	48	5	104	51	178	2	0	231	632
05:30 PM	3	8	1	0	12	5	188	36	0	229	29	15	43	0	87	68	168	1	0	237	565
Total Volume	6	49	5	8	68	15	857	160	3	1035	106	63	175	7	351	204	676	10	8	898	2352
% App. Total	8.8	72.1	7.4	11.8		1.4	82.8	15.5	0.3		30.2	17.9	49.9	2		22.7	75.3	1.1	0.9		
PHF	.500	.721	.417	.333	.739	.625	.916	.784	.375	.924	.736	.788	.911	.350	.844	.750	.949	.625	.250	.947	.930



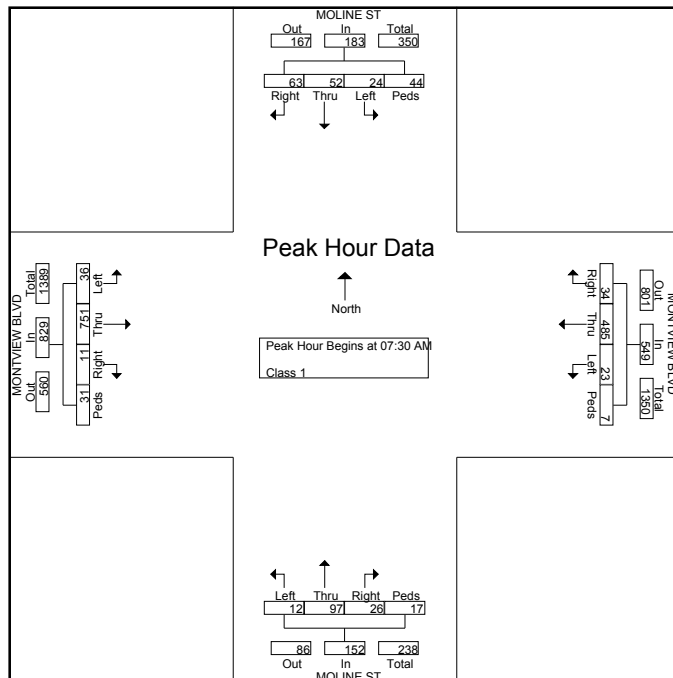
Groups Printed- Class 1

Start Time	MOLINE ST Southbound				MONTVIEW BLVD Westbound				MOLINE ST Northbound				MONTVIEW BLVD Eastbound				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	8	12	1	0	8	102	2	0	3	22	5	1	7	144	9	3	327
07:15 AM	7	18	8	1	10	110	3	0	9	23	5	0	7	163	15	2	381
07:30 AM	7	11	6	18	8	124	1	0	6	19	4	7	3	203	11	10	438
07:45 AM	14	23	7	17	13	120	4	3	6	37	2	8	3	186	13	18	474
Total	36	64	22	36	39	456	10	3	24	101	16	16	20	696	48	33	1620
08:00 AM	19	8	9	6	7	106	7	1	7	21	1	1	4	164	8	3	372
08:15 AM	23	10	2	3	6	135	11	3	7	20	5	1	1	198	4	0	429
08:30 AM	6	6	8	1	3	75	4	0	4	17	2	2	2	124	11	2	267
08:45 AM	4	8	4	2	0	68	0	0	4	9	0	0	4	144	8	0	255
Total	52	32	23	12	16	384	22	4	22	67	8	4	11	630	31	5	1323
Grand Total	88	96	45	48	55	840	32	7	46	168	24	20	31	1326	79	38	2943
Approch %	31.8	34.7	16.2	17.3	5.9	89.9	3.4	0.7	17.8	65.1	9.3	7.8	2.1	90	5.4	2.6	
Total %	3	3.3	1.5	1.6	1.9	28.5	1.1	0.2	1.6	5.7	0.8	0.7	1.1	45.1	2.7	1.3	



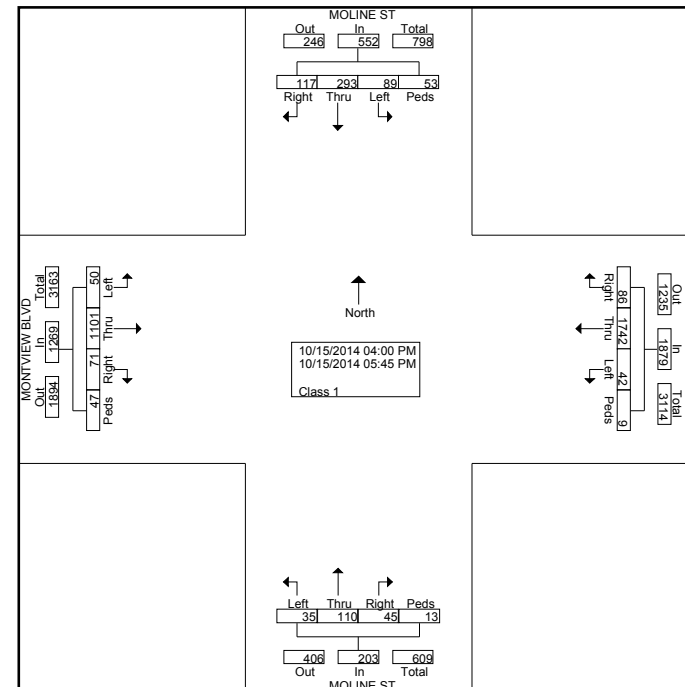
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 Start Date : 10/15/2014
 Page No : 2

Start Time	MOLINE ST Southbound					MONTVIEW BLVD Westbound					MOLINE ST Northbound					MONTVIEW BLVD Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	7	11	6	18	42	8	124	1	0	133	6	19	4	7	36	3	203	11	10	227	438
07:45 AM	14	23	7	17	61	13	120	4	3	140	6	37	2	8	53	3	186	13	18	220	474
08:00 AM	19	8	9	6	42	7	106	7	1	121	7	21	1	1	30	4	164	8	3	179	372
08:15 AM	23	10	2	3	38	6	135	11	3	155	7	20	5	1	33	1	198	4	0	203	429
Total Volume	63	52	24	44	183	34	485	23	7	549	26	97	12	17	152	11	751	36	31	829	1713
% App. Total	34.4	28.4	13.1	24		6.2	88.3	4.2	1.3		17.1	63.8	7.9	11.2		1.3	90.6	4.3	3.7		
PHF	.685	.565	.667	.611	.750	.654	.898	.523	.583	.885	.929	.655	.600	.531	.717	.688	.925	.692	.431	.913	.903



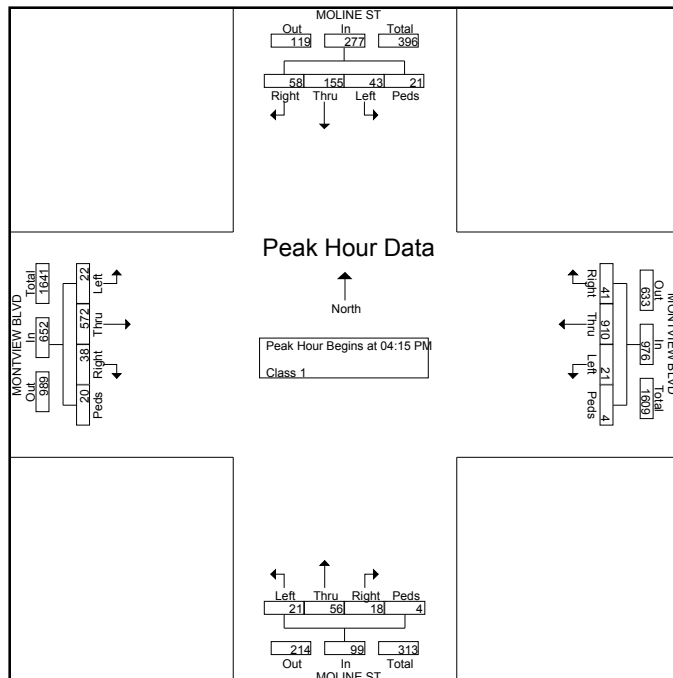
Groups Printed- Class 1

Start Time	MOLINE ST Southbound				MONTVIEW BLVD Westbound				MOLINE ST Northbound				MONTVIEW BLVD Eastbound				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	23	35	20	13	10	201	10	1	8	17	2	5	8	142	12	12	519
04:15 PM	16	40	6	9	9	202	3	0	5	16	5	1	9	152	8	6	487
04:30 PM	13	34	7	2	10	213	2	1	5	13	4	0	7	150	6	4	471
04:45 PM	11	40	12	2	10	244	7	1	4	12	4	1	11	128	4	1	492
Total	63	149	45	26	39	860	22	3	22	58	15	7	35	572	30	23	1969
05:00 PM	18	41	18	8	12	251	9	2	4	15	8	2	11	142	4	9	554
05:15 PM	14	36	9	6	11	223	2	1	5	14	4	1	9	137	7	5	484
05:30 PM	12	31	6	8	9	210	3	2	8	12	4	2	6	135	5	4	457
05:45 PM	10	36	11	5	15	198	6	1	6	11	4	1	10	115	4	6	439
Total	54	144	44	27	47	882	20	6	23	52	20	6	36	529	20	24	1934
Grand Total	117	293	89	53	86	1742	42	9	45	110	35	13	71	1101	50	47	3903
Apprch %	21.2	53.1	16.1	9.6	4.6	92.7	2.2	0.5	22.2	54.2	17.2	6.4	5.6	86.8	3.9	3.7	
Total %	3	7.5	2.3	1.4	2.2	44.6	1.1	0.2	1.2	2.8	0.9	0.3	1.8	28.2	1.3	1.2	



File Name : #3 MOLINE&MONTVIEWPM
 Site Code : 00000000
 Start Date : 10/15/2014
 Page No : 2

Start Time	MOLINE ST Southbound					MONTVIEW BLVD Westbound					MOLINE ST Northbound					MONTVIEW BLVD Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	16	40	6	9	71	9	202	3	0	214	5	16	5	1	27	9	152	8	6	175	487
04:30 PM	13	34	7	2	56	10	213	2	1	226	5	13	4	0	22	7	150	6	4	167	471
04:45 PM	11	40	12	2	65	10	244	7	1	262	4	12	4	1	21	11	128	4	1	144	492
05:00 PM	18	41	18	8	85	12	251	9	2	274	4	15	8	2	29	11	142	4	9	166	554
Total Volume	58	155	43	21	277	41	910	21	4	976	18	56	21	4	99	38	572	22	20	652	2004
% App. Total	20.9	56	15.5	7.6		4.2	93.2	2.2	0.4		18.2	56.6	21.2	4		5.8	87.7	3.4	3.1		
PHF	.806	.945	.597	.583	.815	.854	.906	.583	.500	.891	.900	.875	.656	.500	.853	.864	.941	.688	.556	.931	.904





Site Code: 4
 Station ID: 4
 MONTVIEW BLVD E/O OAKLAND
 MONTVIEW BLVD E/O OAKLAND

Start Time	14-Oct-14 Tue	EB	WB						Total
12:00 AM		40	39						79
01:00		24	26						50
02:00		9	19						28
03:00		14	12						26
04:00		55	34						89
05:00		186	97						283
06:00		439	252						691
07:00		758	491						1249
08:00		720	408						1128
09:00		398	284						682
10:00		351	294						645
11:00		330	371						701
12:00 PM		390	333						723
01:00		406	379						785
02:00		437	450						887
03:00		544	647						1191
04:00		618	908						1526
05:00		682	905						1587
06:00		516	620						1136
07:00		380	394						774
08:00		242	222						464
09:00		199	155						354
10:00		123	126						249
11:00		86	77						163
Total		7947	7543						15490
Percent		51.3%	48.7%						
AM Peak	-	07:00	07:00	-	-	-	-	-	07:00
Vol.	-	758	491	-	-	-	-	-	1249
PM Peak	-	17:00	16:00	-	-	-	-	-	17:00
Vol.	-	682	908	-	-	-	-	-	1587
Total		7947	7543						15490
Percent		51.3%	48.7%						
ADT		ADT 15,490	AADT 15,490						



Site Code: 5
 Station ID: 5
 MONTVIEW BLVD E/O KENTON ST
 MONTVIEW BLVD E/O KENTON ST

Start Time	14-Oct-14 Tue	EB	WB	Total					
12:00 AM		39	38	77					
01:00		25	25	50					
02:00		15	22	37					
03:00		24	23	47					
04:00		56	42	98					
05:00		169	136	305					
06:00		378	304	682					
07:00		659	540	1199					
08:00		618	438	1056					
09:00		363	326	689					
10:00		317	293	610					
11:00		302	373	675					
12:00 PM		356	363	719					
01:00		396	385	781					
02:00		431	461	892					
03:00		515	639	1154					
04:00		601	890	1491					
05:00		683	886	1569					
06:00		530	613	1143					
07:00		389	390	779					
08:00		269	232	501					
09:00		217	167	384					
10:00		139	135	274					
11:00		83	60	143					
Total		7574	7781	15355					
Percent		49.3%	50.7%						
AM Peak	-	07:00	07:00	-	-	-	-	-	07:00
Vol.	-	659	540	-	-	-	-	-	1199
PM Peak	-	17:00	16:00	-	-	-	-	-	17:00
Vol.	-	683	890	-	-	-	-	-	1569
Total		7574	7781						15355
Percent		49.3%	50.7%						
ADT		ADT 14,961	AADT 14,961						



Site Code: 6
 Station ID: 6
 MONTVIEW BLVD E/O CLINTON ST
 MONTVIEW BLVD E/O CLINTON ST























Start Time	14-Oct-14		WB							Total
	Tue	EB								
12:00 AM		67	49							116
01:00		45	36							81
02:00		24	19							43
03:00		22	55							77
04:00		54	103							157
05:00		152	303							455
06:00		358	643							1001
07:00		729	850							1579
08:00		662	594							1256
09:00		456	511							967
10:00		408	432							840
11:00		429	507							936
12:00 PM		505	615							1120
01:00		492	564							1056
02:00		586	592							1178
03:00		719	799							1518
04:00		980	1048							2028
05:00		1125	1080							2205
06:00		894	742							1636
07:00		535	454							989
08:00		361	311							672
09:00		292	242							534
10:00		221	156							377
11:00		127	76							203
Total		10243	10781							21024
Percent		48.7%	51.3%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	729	850	-	-	-	-	-	-	1579
PM Peak	-	17:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	1125	1080	-	-	-	-	-	-	2205
Total		10243	10781							21024
Percent		48.7%	51.3%							
ADT		ADT 20,757	AADT 20,757							

APPENDIX B

Appendix B: Montview Traffic LOS Output

HCM Signalized Intersection Capacity Analysis 123: Dayton St & Montview Blvd

2014 AM Exist
Montview AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	711	67	66	658	12	131	33	62	20	56	22
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	3671		1863	3712		1863	1961	1667	1863	1961	1667
Flt Permitted	0.35	1.00		0.30	1.00		0.70	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	693	3671		583	3712		1381	1961	1667	1419	1961	1667
Peak-hour factor, PHF	0.58	0.88	0.77	0.66	0.90	0.65	0.68	0.65	0.63	0.75	0.69	0.66
Adj. Flow (vph)	28	808	87	100	731	18	193	51	98	27	81	33
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	82	0	0	27
Lane Group Flow (vph)	28	888	0	100	748	0	193	51	16	27	81	6
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	81.1	81.1		81.1	81.1		18.4	18.4	18.4	18.4	18.4	18.4
Effective Green, g (s)	81.1	81.1		81.1	81.1		18.4	18.4	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.74	0.74		0.74	0.74		0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	510	2706		429	2736		231	328	278	237	328	278
v/s Ratio Prot		c0.24			0.20			0.03			0.04	
v/s Ratio Perm	0.04			0.17			c0.14		0.01	0.02		0.00
v/c Ratio	0.05	0.33		0.23	0.27		0.84	0.16	0.06	0.11	0.25	0.02
Uniform Delay, d1	4.0	5.0		4.6	4.8		44.3	39.2	38.5	38.9	39.8	38.3
Progression Factor	0.87	0.93		0.82	0.79		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		1.3	0.2		21.3	0.1	0.0	0.1	0.1	0.0
Delay (s)	3.7	5.0		5.0	4.0		65.7	39.2	38.6	39.0	39.9	38.3
Level of Service	A	A		A	A		E	D	D	D	D	D
Approach Delay (s)		4.9			4.1			54.0			39.4	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay		14.2					HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio		0.42										
Actuated Cycle Length (s)		110.0					Sum of lost time (s)		10.5			
Intersection Capacity Utilization		51.3%					ICU Level of Service		A			
Analysis Period (min)		15										
c	Critical Lane Group											





















HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2014 AM Exist
Montview AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	5	689	116	105	511	3	132	35	108	5	54	10	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)	5.0	5.0		4.0	4.0			5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		1.00	1.00	
Satd. Flow (prot)	1863	3643		1863	3720			1891	1667		1953	1667	
Flt Permitted	0.43	1.00		0.25	1.00			0.72	1.00		0.97	1.00	
Satd. Flow (perm)	839	3643		485	3720			1404	1667		1897	1667	
Peak-hour factor, PHF	0.63	0.84	0.81	0.81	0.87	0.50	0.75	0.56	0.73	0.63	0.61	0.50	
Adj. Flow (vph)	8	820	143	130	587	6	176	62	148	8	89	20	
RTOR Reduction (vph)	0	13	0	0	1	0	0	0	61	0	0	16	
Lane Group Flow (vph)	8	950	0	130	592	0	0	238	87	0	97	4	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		2		1	1 2			4			4		
Permitted Phases	2			1 2			4		4	4		4	
Actuated Green, G (s)	68.0	68.0		75.8	79.8			20.2	20.2		20.2	20.2	
Effective Green, g (s)	68.0	68.0		75.8	79.8			20.2	20.2		20.2	20.2	
Actuated g/C Ratio	0.62	0.62		0.69	0.73			0.18	0.18		0.18	0.18	
Clearance Time (s)	5.0	5.0		4.0				5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		1.5				2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	518	2252		431	2698			257	306		348	306	
v/s Ratio Prot		c0.26		c0.02	0.16								
v/s Ratio Perm	0.01			0.19				c0.17	0.05		0.05	0.00	
v/c Ratio	0.02	0.42		0.30	0.22			0.93	0.28		0.28	0.01	
Uniform Delay, d1	8.1	10.8		6.5	4.9			44.2	38.7		38.6	36.7	
Progression Factor	0.98	0.95		1.38	1.49			1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		0.1	0.0			36.0	0.2		0.2	0.0	
Delay (s)	8.0	10.9		9.1	7.3			80.2	38.9		38.8	36.7	
Level of Service	A	B		A	A			F	D		D	D	
Approach Delay (s)		10.9			7.7			64.4			38.4		
Approach LOS		B			A			E			D		
Intersection Summary													
HCM 2000 Control Delay		20.7										HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio		0.52											
Actuated Cycle Length (s)			110.0						14.0			Sum of lost time (s)	14.0
Intersection Capacity Utilization			54.2%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2014 AM Exist
Montview AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	751	11	23	485	34	12	97	26	24	52	63
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3715		1863	3686		1863	1902		1863	1799	
Flt Permitted	0.40	1.00		0.32	1.00		0.48	1.00		0.46	1.00	
Satd. Flow (perm)	790	3715		629	3686		945	1902		897	1799	
Peak-hour factor, PHF	0.74	0.93	0.67	0.55	0.83	0.78	0.48	0.83	0.90	0.61	0.82	0.82
Adj. Flow (vph)	49	808	16	42	584	44	25	117	29	39	63	77
RTOR Reduction (vph)	0	1	0	0	3	0	0	8	0	0	41	0
Lane Group Flow (vph)	49	823	0	42	625	0	25	138	0	39	99	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	84.7	80.5		80.5	80.5		11.8	11.8		11.8	11.8	
Effective Green, g (s)	84.7	80.5		80.5	80.5		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.77	0.73		0.73	0.73		0.11	0.11		0.11	0.11	
Clearance Time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	649	2718		460	2697		101	204		96	192	
v/s Ratio Prot	c0.00	c0.22			0.17			c0.07			0.05	
v/s Ratio Perm	0.06			0.07			0.03			0.04		
v/c Ratio	0.08	0.30		0.09	0.23		0.25	0.68		0.41	0.52	
Uniform Delay, d1	3.0	5.1		4.2	4.8		45.0	47.3		45.8	46.4	
Progression Factor	0.57	0.90		0.47	0.49		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.3		0.4	0.2		0.5	6.8		1.0	1.0	
Delay (s)	1.7	4.8		2.4	2.5		45.5	54.1		46.9	47.4	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		4.7			2.5			52.8			47.3	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			12.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			49.7%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												





















HCM Signalized Intersection Capacity Analysis
123: Dayton St & Montview Blvd

2014 PM Exist
Montview PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	899	147	64	976	17	99	47	51	28	47	32
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	3646		1863	3714		1863	1961	1667	1863	1961	1667
Flt Permitted	0.24	1.00		0.20	1.00		0.71	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	461	3646		387	3714		1394	1961	1667	1404	1961	1667
Peak-hour factor, PHF	0.67	0.85	0.84	0.67	0.91	0.79	0.64	0.75	0.81	0.72	0.66	0.89
Adj. Flow (vph)	49	1058	175	96	1073	22	155	63	63	39	71	36
RTOR Reduction (vph)	0	9	0	0	1	0	0	0	53	0	0	30
Lane Group Flow (vph)	49	1224	0	96	1094	0	155	63	10	39	71	6
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	74.0	74.0		74.0	74.0		15.5	15.5	15.5	15.5	15.5	15.5
Effective Green, g (s)	74.0	74.0		74.0	74.0		15.5	15.5	15.5	15.5	15.5	15.5
Actuated g/C Ratio	0.74	0.74		0.74	0.74		0.16	0.16	0.16	0.16	0.16	0.16
Clearance Time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	341	2698		286	2748		216	303	258	217	303	258
v/s Ratio Prot		c0.34			0.29			0.03			0.04	
v/s Ratio Perm	0.11			0.25			c0.11		0.01	0.03		0.00
v/c Ratio	0.14	0.45		0.34	0.40		0.72	0.21	0.04	0.18	0.23	0.02
Uniform Delay, d1	3.8	5.1		4.5	4.8		40.2	36.9	35.9	36.7	37.0	35.8
Progression Factor	0.89	0.95		1.06	1.13		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.5		3.1	0.4		9.1	0.1	0.0	0.1	0.1	0.0
Delay (s)	4.2	5.4		7.9	5.9		49.3	37.0	35.9	36.9	37.2	35.8
Level of Service	A	A		A	A		D	D	D	D	D	D
Approach Delay (s)		5.3			6.0			43.5			36.8	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay		10.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)		10.5					
Intersection Capacity Utilization		57.0%			ICU Level of Service		B					
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2014 PM Exist
Montview PM

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (vph)	10	676	204	160	857	15	175	63	106	5	49	6		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000		
Total Lost time (s)	5.0	5.0		4.0	4.0			5.0	5.0		5.0	5.0		
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00		
Frt	1.00	0.97		1.00	1.00			1.00	0.85		1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		1.00	1.00		
Satd. Flow (prot)	1863	3606		1863	3715			1892	1667		1954	1667		
Flt Permitted	0.28	1.00		0.20	1.00			0.72	1.00		0.97	1.00		
Satd. Flow (perm)	540	3606		384	3715			1421	1667		1904	1667		
Peak-hour factor, PHF	0.69	0.85	0.94	0.75	0.84	0.75	0.83	0.80	0.80	0.75	0.56	0.38		
Adj. Flow (vph)	14	795	217	213	1020	20	211	79	132	7	88	16		
RTOR Reduction (vph)	0	24	0	0	1	0	0	0	51	0	0	12		
Lane Group Flow (vph)	14	988	0	213	1039	0	0	290	81	0	95	4		
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm		
Protected Phases		2		1	1 2			4			4			
Permitted Phases	2			1 2			4		4	4		4		
Actuated Green, G (s)	50.8	50.8		62.9	66.9			23.1	23.1		23.1	23.1		
Effective Green, g (s)	50.8	50.8		62.9	66.9			23.1	23.1		23.1	23.1		
Actuated g/C Ratio	0.51	0.51		0.63	0.67			0.23	0.23		0.23	0.23		
Clearance Time (s)	5.0	5.0		4.0				5.0	5.0		5.0	5.0		
Vehicle Extension (s)	2.0	2.0		1.5				2.0	2.0		2.0	2.0		
Lane Grp Cap (vph)	274	1831		420	2485			328	385		439	385		
v/s Ratio Prot		c0.27		c0.06	0.28									
v/s Ratio Perm	0.03			0.26				c0.20	0.05		0.05	0.00		
v/c Ratio	0.05	0.54		0.51	0.42			0.88	0.21		0.22	0.01		
Uniform Delay, d1	12.4	16.7		9.8	7.6			37.2	31.1		31.1	29.6		
Progression Factor	0.76	0.77		2.08	0.74			1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.4	1.1		0.3	0.0			22.8	0.1		0.1	0.0		
Delay (s)	9.8	14.0		20.6	5.7			60.0	31.2		31.2	29.6		
Level of Service	A	B		C	A			E	C		C	C		
Approach Delay (s)		14.0			8.2			51.0			31.0			
Approach LOS		B			A			D			C			
Intersection Summary														
HCM 2000 Control Delay			17.6									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.63											
Actuated Cycle Length (s)			100.0								14.0		Sum of lost time (s)	
Intersection Capacity Utilization			63.1%										ICU Level of Service	B
Analysis Period (min)			15											
c	Critical Lane Group													























HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2014 PM Exist
Montview PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	572	38	21	910	41	21	56	18	43	155	58
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3686		1863	3700		1863	1864		1863	1879	
Flt Permitted	0.23	1.00		0.38	1.00		0.30	1.00		0.70	1.00	
Satd. Flow (perm)	442	3686		745	3700		585	1864		1365	1879	
Peak-hour factor, PHF	0.88	0.93	0.81	0.65	0.89	0.85	0.69	0.89	0.59	0.68	0.84	0.82
Adj. Flow (vph)	25	615	47	32	1022	48	30	63	31	63	185	71
RTOR Reduction (vph)	0	4	0	0	2	0	0	20	0	0	16	0
Lane Group Flow (vph)	25	658	0	32	1068	0	30	74	0	63	240	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	69.2	67.1		67.1	67.1		17.3	17.3		17.3	17.3	
Effective Green, g (s)	69.2	67.1		67.1	67.1		17.3	17.3		17.3	17.3	
Actuated g/C Ratio	0.69	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
Clearance Time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	335	2473		499	2482		101	322		236	325	
v/s Ratio Prot	c0.00	0.18			c0.29			0.04			c0.13	
v/s Ratio Perm	0.05			0.04			0.05			0.05		
v/c Ratio	0.07	0.27		0.06	0.43		0.30	0.23		0.27	0.74	
Uniform Delay, d1	5.4	6.6		5.7	7.6		36.0	35.6		35.9	39.2	
Progression Factor	0.61	0.48		0.73	0.94		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2		0.2	0.5		0.6	0.1		0.2	7.4	
Delay (s)	3.3	3.4		4.4	7.7		36.7	35.7		36.1	46.6	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		3.4			7.6			36.0			44.5	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay	13.2		HCM 2000 Level of Service				B					
HCM 2000 Volume to Capacity ratio	0.48											
Actuated Cycle Length (s)	100.0				Sum of lost time (s)				13.5			
Intersection Capacity Utilization	49.6%				ICU Level of Service				A			
Analysis Period (min)	15											
c Critical Lane Group												





















HCM Signalized Intersection Capacity Analysis
123: Dayton St & Montview Blvd

2035 AM No-Build
Montview AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1020	100	95	945	20	190	50	90	30	85	35
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	3669		1863	3709		1863	1961	1667	1863	1961	1667
Fl _t Permitted	0.22	1.00		0.17	1.00		0.66	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	438	3669		326	3709		1292	1961	1667	1386	1961	1667
Peak-hour factor, PHF	0.58	0.88	0.77	0.66	0.90	0.65	0.68	0.65	0.63	0.75	0.69	0.66
Adj. Flow (vph)	43	1159	130	144	1050	31	279	77	143	40	123	53
RTOR Reduction (vph)	0	7	0	0	2	0	0	0	83	0	0	41
Lane Group Flow (vph)	43	1282	0	144	1079	0	279	77	60	40	123	12
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	74.2	74.2		74.2	74.2		25.3	25.3	25.3	25.3	25.3	25.3
Effective Green, g (s)	74.2	74.2		74.2	74.2		25.3	25.3	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.23	0.23	0.23	0.23	0.23	0.23
Clearance Time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	295	2474		219	2501		297	451	383	318	451	383
v/s Ratio Prot		0.35			0.29			0.04			0.06	
v/s Ratio Perm	0.10			c0.44			c0.22		0.04	0.03		0.01
v/c Ratio	0.15	0.52		0.66	0.43		0.94	0.17	0.16	0.13	0.27	0.03
Uniform Delay, d ₁	6.5	9.0		10.5	8.2		41.6	33.9	33.8	33.6	34.8	32.8
Progression Factor	0.95	0.97		0.80	0.78		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	1.0	0.8		14.4	0.5		35.6	0.1	0.1	0.1	0.1	0.0
Delay (s)	7.2	9.5		22.7	6.9		77.2	34.0	33.9	33.6	34.9	32.9
Level of Service	A	A		C	A		E	C	C	C	C	C
Approach Delay (s)		9.4			8.8			58.1			34.2	
Approach LOS		A			A			E			C	
Intersection Summary												
HCM 2000 Control Delay			18.2			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			10.5			
Intersection Capacity Utilization			64.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												






















HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2035 AM No-Build
Montview AM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	10	990	170	155	735	5	190	55	155	10	80	15	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)	5.0	5.0		4.0	4.0			5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00	
Flt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.99	1.00	
Satd. Flow (prot)	1863	3641		1863	3719			1893	1667		1950	1667	
Flt Permitted	0.33	1.00		0.08	1.00			0.66	1.00		0.94	1.00	
Satd. Flow (perm)	649	3641		153	3719			1289	1667		1852	1667	
Peak-hour factor, PHF	0.63	0.84	0.81	0.81	0.87	0.50	0.75	0.56	0.73	0.63	0.61	0.50	
Adj. Flow (vph)	16	1179	210	191	845	10	253	98	212	16	131	30	
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	65	0	0	21	
Lane Group Flow (vph)	16	1377	0	191	854	0	0	351	147	0	147	9	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		2		1	1 2			4			4		
Permitted Phases	2			1 2			4		4	4		4	
Actuated Green, G (s)	51.4	51.4		62.8	66.8			33.2	33.2		33.2	33.2	
Effective Green, g (s)	51.4	51.4		62.8	66.8			33.2	33.2		33.2	33.2	
Actuated g/C Ratio	0.47	0.47		0.57	0.61			0.30	0.30		0.30	0.30	
Clearance Time (s)	5.0	5.0		4.0				5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		1.5				2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	303	1701		264	2258			389	503		558	503	
v/s Ratio Prot		c0.38		c0.07	0.23								
v/s Ratio Perm	0.02			0.34				c0.27	0.09		0.08	0.01	
v/c Ratio	0.05	0.81		0.72	0.38			0.90	0.29		0.26	0.02	
Uniform Delay, d1	16.0	25.1		25.2	11.0			36.8	29.4		29.1	27.0	
Progression Factor	1.14	0.99		0.87	1.34			1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	4.3		7.7	0.0			23.0	0.1		0.1	0.0	
Delay (s)	18.6	29.2		29.6	14.8			59.9	29.5		29.2	27.0	
Level of Service	B	C		C	B			E	C		C	C	
Approach Delay (s)		29.1			17.5			48.4			28.8		
Approach LOS		C			B			D			C		
Intersection Summary													
HCM 2000 Control Delay			28.7									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.83										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	14.0
Intersection Capacity Utilization			70.4%									ICU Level of Service	C
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2035 AM No-Build
Montview AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	1045	20	35	675	50	20	135	40	35	75	90
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Fr _t	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.92	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3711		1863	3685		1863	1898		1863	1800	
Fl _t Permitted	0.30	1.00		0.21	1.00		0.31	1.00		0.29	1.00	
Satd. Flow (perm)	582	3711		410	3685		602	1898		568	1800	
Peak-hour factor, PHF	0.74	0.93	0.67	0.55	0.83	0.78	0.48	0.83	0.90	0.61	0.82	0.82
Adj. Flow (vph)	74	1124	30	64	813	64	42	163	44	57	91	110
RTOR Reduction (vph)	0	1	0	0	4	0	0	9	0	0	40	0
Lane Group Flow (vph)	74	1153	0	64	873	0	42	198	0	57	161	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	82.7	78.2		78.2	78.2		13.8	13.8		13.8	13.8	
Effective Green, g (s)	82.7	78.2		78.2	78.2		13.8	13.8		13.8	13.8	
Actuated g/C Ratio	0.75	0.71		0.71	0.71		0.13	0.13		0.13	0.13	
Clearance Time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	489	2638		291	2619		75	238		71	225	
v/s Ratio Prot	c0.01	c0.31			0.24			c0.10			0.09	
v/s Ratio Perm	0.11			0.16			0.07			0.10		
v/c Ratio	0.15	0.44		0.22	0.33		0.56	0.83		0.80	0.71	
Uniform Delay, d ₁	3.7	6.7		5.4	6.0		45.2	47.0		46.8	46.2	
Progression Factor	2.17	2.44		0.66	0.67		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.0	0.4		1.7	0.3		5.6	20.6		44.1	8.6	
Delay (s)	8.2	16.6		5.3	4.4		50.8	67.5		90.9	54.8	
Level of Service	A	B		A	A		D	E		F	D	
Approach Delay (s)		16.1			4.4			64.7			62.8	
Approach LOS		B			A			E			E	
Intersection Summary												
HCM 2000 Control Delay			21.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			60.4%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
123: Dayton St & Montview Blvd

2035 PM No-Build
Montview PM





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↘	↙	↕	↘	↙	↕	↘	↙	↕	↘
Volume (vph)	50	1290	215	95	1400	25	145	70	75	45	70	40
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	3645		1863	3714		1863	1961	1667	1863	1961	1667
Flt Permitted	0.11	1.00		0.08	1.00		0.69	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	217	3645		149	3714		1350	1961	1667	1366	1961	1667
Peak-hour factor, PHF	0.67	0.85	0.84	0.67	0.91	0.79	0.64	0.75	0.81	0.72	0.66	0.89
Adj. Flow (vph)	75	1518	256	142	1538	32	227	93	93	62	106	45
RTOR Reduction (vph)	0	11	0	0	1	0	0	0	30	0	0	28
Lane Group Flow (vph)	75	1763	0	142	1569	0	227	93	63	62	106	17
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	68.6	68.6		68.6	68.6		20.9	20.9	20.9	20.9	20.9	20.9
Effective Green, g (s)	68.6	68.6		68.6	68.6		20.9	20.9	20.9	20.9	20.9	20.9
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.21	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	148	2500		102	2547		282	409	348	285	409	348
v/s Ratio Prot		0.48			0.42			0.05				0.05
v/s Ratio Perm	0.35			c0.95			c0.17		0.04	0.05		0.01
v/c Ratio	0.51	0.71		1.39	0.62		0.80	0.23	0.18	0.22	0.26	0.05
Uniform Delay, d1	7.6	9.5		15.7	8.5		37.6	32.8	32.5	32.8	33.1	31.6
Progression Factor	1.02	1.01		1.11	1.04		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.8	1.7		225.4	1.1		14.5	0.1	0.1	0.1	0.1	0.0
Delay (s)	19.4	11.3		242.9	10.0		52.1	32.9	32.6	32.9	33.2	31.6
Level of Service	B	B		F	B		D	C	C	C	C	C
Approach Delay (s)		11.7			29.3			43.4			32.8	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2035 PM No-Build
Montview PM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	15	970	295	230	1230	25	255	95	155	10	75	10	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)	5.0	5.0		4.0	4.0			5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00	
Flt	1.00	0.97		1.00	1.00			1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		1.00	1.00	
Satd. Flow (prot)	1863	3605		1863	3713			1893	1667		1952	1667	
Flt Permitted	0.14	1.00		0.08	1.00			0.65	1.00		0.72	1.00	
Satd. Flow (perm)	278	3605		160	3713			1281	1667		1421	1667	
Peak-hour factor, PHF	0.69	0.85	0.94	0.75	0.84	0.75	0.83	0.80	0.80	0.75	0.56	0.38	
Adj. Flow (vph)	22	1141	314	307	1464	33	307	119	194	13	134	26	
RTOR Reduction (vph)	0	25	0	0	1	0	0	0	49	0	0	19	
Lane Group Flow (vph)	22	1430	0	307	1496	0	0	426	145	0	147	7	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		2		1	1 2			4			4		
Permitted Phases	2			1 2			4		4	4		4	
Actuated Green, G (s)	49.0	49.0		60.0	64.0			26.0	26.0		26.0	26.0	
Effective Green, g (s)	49.0	49.0		60.0	64.0			26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.49	0.49		0.60	0.64			0.26	0.26		0.26	0.26	
Clearance Time (s)	5.0	5.0		4.0				5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		1.5				2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	136	1766		283	2376			333	433		369	433	
v/s Ratio Prot		0.40		c0.12	0.40								
v/s Ratio Perm	0.08			c0.53				c0.33	0.09		0.10	0.00	
v/c Ratio	0.16	0.81		1.08	0.63			1.28	0.34		0.40	0.02	
Uniform Delay, d1	14.1	21.6		29.6	10.9			37.0	30.0		30.5	27.5	
Progression Factor	0.89	0.83		1.44	0.73			1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	4.1		73.5	0.3			146.9	0.2		0.3	0.0	
Delay (s)	15.1	22.0		116.2	8.2			183.9	30.2		30.8	27.5	
Level of Service	B	C		F	A			F	C		C	C	
Approach Delay (s)		21.9			26.6			135.8			30.3		
Approach LOS		C			C			F			C		
Intersection Summary													
HCM 2000 Control Delay			41.7									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.14										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	14.0
Intersection Capacity Utilization			83.0%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2035 PM No-Build
Montview PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	800	55	30	1265	60	30	80	30	60	220	85
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.96	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3685		1863	3699		1863	1854		1863	1877	
Fl _t Permitted	0.10	1.00		0.26	1.00		0.18	1.00		0.62	1.00	
Satd. Flow (perm)	198	3685		504	3699		355	1854		1212	1877	
Peak-hour factor, PHF	0.88	0.93	0.81	0.65	0.89	0.85	0.69	0.89	0.59	0.68	0.84	0.82
Adj. Flow (vph)	40	860	68	46	1421	71	43	90	51	88	262	104
RTOR Reduction (vph)	0	5	0	0	3	0	0	22	0	0	15	0
Lane Group Flow (vph)	40	923	0	46	1489	0	43	119	0	88	351	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	2		2			4			4		4
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	64.4	61.0		61.0	61.0		22.1	22.1		22.1	22.1	
Effective Green, g (s)	64.4	61.0		61.0	61.0		22.1	22.1		22.1	22.1	
Actuated g/C Ratio	0.64	0.61		0.61	0.61		0.22	0.22		0.22	0.22	
Clearance Time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	184	2247		307	2256		78	409		267	414	
v/s Ratio Prot	c0.01	0.25			c0.40			0.06			c0.19	
v/s Ratio Perm	0.13			0.09			0.12			0.07		
v/c Ratio	0.22	0.41		0.15	0.66		0.55	0.29		0.33	0.85	
Uniform Delay, d ₁	10.2	10.1		8.4	12.7		34.6	32.4		32.7	37.3	
Progression Factor	0.65	0.47		0.90	1.02		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.1	0.4		1.0	1.5		4.7	0.1		0.3	14.3	
Delay (s)	6.7	5.2		8.6	14.5		39.3	32.6		33.0	51.7	
Level of Service	A	A		A	B		D	C		C	D	
Approach Delay (s)		5.2			14.3			34.1			48.0	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



HCM Signalized Intersection Capacity Analysis
123: Dayton St & Montview Blvd

2014 AM Road Diet
Montview AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	711	67	66	658	12	131	33	62	20	56	22
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1932		1863	1954		1863	1961	1667	1863	1961	1667
Flt Permitted	0.31	1.00		0.24	1.00		0.70	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	604	1932		462	1954		1381	1961	1667	1419	1961	1667
Peak-hour factor, PHF	0.58	0.88	0.77	0.66	0.90	0.65	0.68	0.65	0.63	0.75	0.69	0.66
Adj. Flow (vph)	28	808	87	100	731	18	193	51	98	27	81	33
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	82	0	0	27
Lane Group Flow (vph)	28	892	0	100	748	0	193	51	16	27	81	6
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	81.1	81.1		81.1	81.1		18.4	18.4	18.4	18.4	18.4	18.4
Effective Green, g (s)	81.1	81.1		81.1	81.1		18.4	18.4	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.74	0.74		0.74	0.74		0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	445	1424		340	1440		231	328	278	237	328	278
v/s Ratio Prot		c0.46			0.38			0.03			0.04	
v/s Ratio Perm	0.05			0.22			c0.14		0.01	0.02		0.00
v/c Ratio	0.06	0.63		0.29	0.52		0.84	0.16	0.06	0.11	0.25	0.02
Uniform Delay, d1	4.0	7.1		4.8	6.2		44.3	39.2	38.5	38.9	39.8	38.3
Progression Factor	0.88	0.98		0.78	0.69		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	2.1		2.2	1.3		21.3	0.1	0.0	0.1	0.1	0.0
Delay (s)	3.8	9.0		6.0	5.6		65.7	39.2	38.6	39.0	39.9	38.3
Level of Service	A	A		A	A		E	D	D	D	D	D
Approach Delay (s)		8.8			5.7			54.0			39.4	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay		16.4			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			10.5				
Intersection Capacity Utilization		70.1%			ICU Level of Service			C				
Analysis Period (min)		15										
c	Critical Lane Group											





















HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2014 AM Road Diet
Montview AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	689	116	105	511	3	132	35	108	5	54	10
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		4.0	4.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.89		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	1917		1863	1958		1863	1754		1863	1907	
Flt Permitted	0.44	1.00		0.12	1.00		0.65	1.00		0.38	1.00	
Satd. Flow (perm)	864	1917		231	1958		1276	1754		737	1907	
Peak-hour factor, PHF	0.63	0.84	0.81	0.81	0.87	0.50	0.75	0.56	0.73	0.63	0.61	0.50
Adj. Flow (vph)	8	820	143	130	587	6	176	62	148	8	89	20
RTOR Reduction (vph)	0	6	0	0	0	0	0	81	0	0	8	0
Lane Group Flow (vph)	8	957	0	130	593	0	176	129	0	8	101	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	1 2			4			4	
Permitted Phases	2			1 2			4			4		
Actuated Green, G (s)	68.6	68.6		78.1	82.1		17.9	17.9		17.9	17.9	
Effective Green, g (s)	68.6	68.6		78.1	82.1		17.9	17.9		17.9	17.9	
Actuated g/C Ratio	0.62	0.62		0.71	0.75		0.16	0.16		0.16	0.16	
Clearance Time (s)	5.0	5.0		4.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		1.5			2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	538	1195		304	1461		207	285		119	310	
v/s Ratio Prot		c0.50		0.04	c0.30			0.07			0.05	
v/s Ratio Perm	0.01			0.27			c0.14			0.01		
v/c Ratio	0.01	0.80		0.43	0.41		0.85	0.45		0.07	0.33	
Uniform Delay, d1	7.9	15.6		15.5	5.1		44.7	41.6		39.0	40.7	
Progression Factor	1.29	1.06		1.20	1.51		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	5.7		0.3	0.1		26.0	0.4		0.1	0.2	
Delay (s)	10.2	22.2		18.8	7.7		70.8	42.0		39.1	41.0	
Level of Service	B	C		B	A		E	D		D	D	
Approach Delay (s)		22.1			9.7			55.1			40.8	
Approach LOS		C			A			E			D	
Intersection Summary												
HCM 2000 Control Delay		24.8			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			14.0				
Intersection Capacity Utilization		71.9%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												























HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2014 AM Road Diet
Montview AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	751	11	23	485	34	12	97	26	24	52	63
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	1955		1863	1940		1863	1902		1863	1799	
Flt Permitted	0.37	1.00		0.27	1.00		0.48	1.00		0.46	1.00	
Satd. Flow (perm)	719	1955		520	1940		945	1902		897	1799	
Peak-hour factor, PHF	0.74	0.93	0.67	0.55	0.83	0.78	0.48	0.83	0.90	0.61	0.82	0.82
Adj. Flow (vph)	49	808	16	42	584	44	25	117	29	39	63	77
RTOR Reduction (vph)	0	1	0	0	2	0	0	8	0	0	41	0
Lane Group Flow (vph)	49	823	0	42	626	0	25	138	0	39	99	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	84.7	80.5		80.5	80.5		11.8	11.8		11.8	11.8	
Effective Green, g (s)	84.7	80.5		80.5	80.5		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.77	0.73		0.73	0.73		0.11	0.11		0.11	0.11	
Clearance Time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	597	1430		380	1419		101	204		96	192	
v/s Ratio Prot	c0.00	c0.42			0.32			c0.07			0.05	
v/s Ratio Perm	0.06			0.08			0.03			0.04		
v/c Ratio	0.08	0.58		0.11	0.44		0.25	0.68		0.41	0.52	
Uniform Delay, d1	3.6	6.8		4.3	5.8		45.0	47.3		45.8	46.4	
Progression Factor	1.34	1.37		0.47	0.54		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.1		0.6	1.0		0.5	6.8		1.0	1.0	
Delay (s)	4.9	10.4		2.6	4.1		45.5	54.1		46.9	47.4	
Level of Service	A	B		A	A		D	D		D	D	
Approach Delay (s)		10.1			4.0			52.8			47.3	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.3			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)		13.5				
Intersection Capacity Utilization			60.0%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												





















HCM Signalized Intersection Capacity Analysis
123: Dayton St & Montview Blvd

2014 PM Road Diet
Montview PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	899	147	64	976	17	99	47	51	28	47	25
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1919		1863	1955		1863	1961	1667	1863	1961	1667
Flt Permitted	0.14	1.00		0.07	1.00		0.71	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	282	1919		144	1955		1394	1961	1667	1404	1961	1667
Peak-hour factor, PHF	0.67	0.85	0.84	0.67	0.91	0.79	0.64	0.75	0.81	0.72	0.66	0.89
Adj. Flow (vph)	49	1058	175	96	1073	22	155	63	63	39	71	28
RTOR Reduction (vph)	0	4	0	0	1	0	0	0	53	0	0	24
Lane Group Flow (vph)	49	1229	0	96	1094	0	155	63	10	39	71	4
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	74.0	74.0		74.0	74.0		15.5	15.5	15.5	15.5	15.5	15.5
Effective Green, g (s)	74.0	74.0		74.0	74.0		15.5	15.5	15.5	15.5	15.5	15.5
Actuated g/C Ratio	0.74	0.74		0.74	0.74		0.16	0.16	0.16	0.16	0.16	0.16
Clearance Time (s)	5.0	5.0		5.0	5.0		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	208	1420		106	1446		216	303	258	217	303	258
v/s Ratio Prot		0.64			0.56			0.03			0.04	
v/s Ratio Perm	0.17			c0.67			c0.11		0.01	0.03		0.00
v/c Ratio	0.24	0.87		0.91	0.76		0.72	0.21	0.04	0.18	0.23	0.02
Uniform Delay, d1	4.1	9.4		10.2	7.7		40.2	36.9	35.9	36.7	37.0	35.8
Progression Factor	0.94	1.03		0.73	0.69		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	7.1		64.5	3.7		9.1	0.1	0.0	0.1	0.1	0.0
Delay (s)	6.4	16.8		71.9	9.1		49.3	37.0	35.9	36.9	37.2	35.8
Level of Service	A	B		E	A		D	D	D	D	D	D
Approach Delay (s)		16.4			14.1			43.5			36.8	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		19.1										B
HCM 2000 Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		100.0							10.5			
Intersection Capacity Utilization		74.1%										D
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2014 PM Road Diet
Montview PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	676	204	160	857	15	175	63	106	5	49	6
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		5.0	4.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	1898		1863	1955		1863	1777		1863	1916	
Flt Permitted	0.19	1.00		0.07	1.00		0.69	1.00		0.44	1.00	
Satd. Flow (perm)	368	1898		129	1955		1353	1777		869	1916	
Peak-hour factor, PHF	0.69	0.85	0.94	0.75	0.84	0.75	0.83	0.80	0.80	0.75	0.56	0.38
Adj. Flow (vph)	14	795	217	213	1020	20	211	79	132	7	88	16
RTOR Reduction (vph)	0	9	0	0	1	0	0	65	0	0	7	0
Lane Group Flow (vph)	14	1003	0	213	1039	0	211	146	0	7	97	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	54.8	54.8		71.5	71.5		19.5	19.5		19.5	19.5	
Effective Green, g (s)	54.8	54.8		71.5	71.5		19.5	19.5		19.5	19.5	
Actuated g/C Ratio	0.55	0.55		0.72	0.72		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.0	5.0		5.0	4.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	1.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	201	1040		277	1397		263	346		169	373	
v/s Ratio Prot		c0.53		0.08	c0.53			0.08			0.05	
v/s Ratio Perm	0.04			0.47			c0.16			0.01		
v/c Ratio	0.07	0.96		0.77	0.74		0.80	0.42		0.04	0.26	
Uniform Delay, d1	10.6	21.7		30.4	8.7		38.4	35.3		32.7	34.1	
Progression Factor	0.82	1.09		1.07	0.89		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	20.5		8.2	1.4		15.2	0.3		0.0	0.1	
Delay (s)	9.4	44.2		40.7	9.1		53.6	35.6		32.7	34.3	
Level of Service	A	D		D	A		D	D		C	C	
Approach Delay (s)		43.7			14.5			44.6			34.2	
Approach LOS		D			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			30.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		15.0			
Intersection Capacity Utilization			82.4%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2014 PM Road Diet
Montview PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	572	38	21	910	41	21	56	18	43	155	58
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	1940		1863	1948		1863	1864		1863	1879	
Flt Permitted	0.10	1.00		0.32	1.00		0.30	1.00		0.70	1.00	
Satd. Flow (perm)	193	1940		634	1948		585	1864		1365	1879	
Peak-hour factor, PHF	0.88	0.93	0.81	0.65	0.89	0.85	0.69	0.89	0.59	0.68	0.84	0.82
Adj. Flow (vph)	25	615	47	32	1022	48	30	63	31	63	185	71
RTOR Reduction (vph)	0	2	0	0	1	0	0	20	0	0	16	0
Lane Group Flow (vph)	25	660	0	32	1069	0	30	74	0	63	240	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	69.2	67.1		67.1	67.1		17.3	17.3		17.3	17.3	
Effective Green, g (s)	69.2	67.1		67.1	67.1		17.3	17.3		17.3	17.3	
Actuated g/C Ratio	0.69	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
Clearance Time (s)	4.0	4.5		4.5	4.5		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	168	1301		425	1307		101	322		236	325	
v/s Ratio Prot	c0.00	0.34			c0.55			0.04			c0.13	
v/s Ratio Perm	0.10			0.05			0.05			0.05		
v/c Ratio	0.15	0.51		0.08	0.82		0.30	0.23		0.27	0.74	
Uniform Delay, d1	14.8	8.2		5.7	12.0		36.0	35.6		35.9	39.2	
Progression Factor	1.75	1.97		0.74	1.04		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		0.3	5.7		0.6	0.1		0.2	7.4	
Delay (s)	26.0	16.8		4.5	18.2		36.7	35.7		36.1	46.6	
Level of Service	C	B		A	B		D	D		D	D	
Approach Delay (s)		17.1			17.8			36.0			44.5	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		22.4					HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			72.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
123: Dayton St & Montview Blvd

2035 AM Road Diet
Montview AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1020	100	95	945	20	190	50	90	30	85	35
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.5	5.5	4.0	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1934		1863	1954		1863	1961	1667	1863	1961	1667
Flt Permitted	0.08	1.00		0.05	1.00		0.45	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	158	1934		105	1954		883	1961	1667	1399	1961	1667
Peak-hour factor, PHF	0.67	0.85	0.84	0.67	0.91	0.79	0.64	0.75	0.81	0.72	0.66	0.89
Adj. Flow (vph)	37	1200	119	142	1038	25	297	67	111	42	129	39
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	97	0	0	35
Lane Group Flow (vph)	37	1317	0	142	1063	0	297	67	14	42	129	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	73.9	70.5		84.4	77.0		23.5	15.5	15.5	18.7	13.1	13.1
Effective Green, g (s)	73.9	70.5		84.4	77.0		23.5	15.5	15.5	18.7	13.1	13.1
Actuated g/C Ratio	0.62	0.59		0.70	0.64		0.20	0.13	0.13	0.16	0.11	0.11
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.5	5.5	4.0	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	145	1136		218	1253		238	253	215	239	214	181
v/s Ratio Prot	0.01	c0.68		c0.05	c0.54		c0.08	0.03		0.01	0.07	
v/s Ratio Perm	0.15			0.40			c0.16		0.01	0.02		0.00
v/c Ratio	0.26	1.16		0.65	0.85		1.25	0.26	0.07	0.18	0.60	0.02
Uniform Delay, d1	20.4	24.8		34.2	16.9		47.3	47.1	45.9	43.7	51.0	47.7
Progression Factor	1.73	1.53		1.07	0.98		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	81.1		2.7	3.9		141.6	0.2	0.0	0.1	3.3	0.0
Delay (s)	35.6	119.0		39.3	20.4		188.9	47.3	45.9	43.9	54.2	47.8
Level of Service	D	F		D	C		F	D	D	D	D	D
Approach Delay (s)		116.7			22.6			135.5			51.0	
Approach LOS		F			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			80.3				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.16									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			18.5		
Intersection Capacity Utilization			90.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2035 AM Road Diet
Montview AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	990	170	155	735	5	190	55	155	10	80	15
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		4.0	4.0		4.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.89		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	1921		1863	1958		1863	1744		1863	1898	
Flt Permitted	0.28	1.00		0.06	1.00		0.28	1.00		0.60	1.00	
Satd. Flow (perm)	545	1921		116	1958		556	1744		1170	1898	
Peak-hour factor, PHF	0.69	0.85	0.94	0.75	0.84	0.75	0.83	0.80	0.80	0.75	0.56	0.38
Adj. Flow (vph)	14	1165	181	207	875	7	229	69	194	13	143	39
RTOR Reduction (vph)	0	4	0	0	0	0	0	95	0	0	9	0
Lane Group Flow (vph)	14	1342	0	207	882	0	229	168	0	13	173	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	62.7	62.7		83.7	83.7		27.3	27.3		15.3	15.3	
Effective Green, g (s)	62.7	62.7		83.7	83.7		27.3	27.3		15.3	15.3	
Actuated g/C Ratio	0.52	0.52		0.70	0.70		0.23	0.23		0.13	0.13	
Clearance Time (s)	5.0	5.0		4.0	4.0		4.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	1.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	284	1003		313	1365		213	396		149	241	
v/s Ratio Prot		c0.70		0.09	c0.45		c0.07	0.10			0.09	
v/s Ratio Perm	0.03			0.37			c0.17			0.01		
v/c Ratio	0.05	1.34		0.66	0.65		1.08	0.42		0.09	0.72	
Uniform Delay, d1	14.0	28.6		35.3	10.0		44.6	39.6		46.2	50.3	
Progression Factor	1.18	1.03		0.76	1.20		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	156.1		3.7	2.2		83.0	0.3		0.1	8.3	
Delay (s)	16.7	185.7		30.5	14.2		127.7	39.9		46.3	58.5	
Level of Service	B	F		C	B		F	D		D	E	
Approach Delay (s)		183.9			17.3			80.7			57.7	
Approach LOS		F			B			F			E	
Intersection Summary												
HCM 2000 Control Delay		102.0					HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio		1.21										
Actuated Cycle Length (s)		120.0					Sum of lost time (s)		18.0			
Intersection Capacity Utilization		95.8%					ICU Level of Service		F			
Analysis Period (min)		15										
c Critical Lane Group												























HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2035 AM Road Diet
Montview AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	1045	20	35	675	50	20	135	40	35	75	90
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.0	4.5		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1863	1954		1863	1940		1863	1870		1863	1961	1667
Flt Permitted	0.26	1.00		0.10	1.00		0.68	1.00		0.26	1.00	1.00
Satd. Flow (perm)	512	1954		189	1940		1333	1870		503	1961	1667
Peak-hour factor, PHF	0.88	0.93	0.81	0.65	0.89	0.85	0.69	0.89	0.59	0.68	0.84	0.82
Adj. Flow (vph)	62	1124	25	54	758	59	29	152	68	51	89	110
RTOR Reduction (vph)	0	1	0	0	2	0	0	14	0	0	0	96
Lane Group Flow (vph)	62	1148	0	54	815	0	29	206	0	51	89	14
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	90.9	86.5		90.9	86.5		15.6	15.6		15.6	15.6	15.6
Effective Green, g (s)	90.9	86.5		90.9	86.5		15.6	15.6		15.6	15.6	15.6
Actuated g/C Ratio	0.76	0.72		0.76	0.72		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	4.5		4.0	4.5		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	437	1408		204	1398		173	243		65	254	216
v/s Ratio Prot	0.01	c0.59		c0.01	0.42			c0.11			0.05	
v/s Ratio Perm	0.10			0.19			0.02			0.10		0.01
v/c Ratio	0.14	0.82		0.26	0.58		0.17	0.85		0.78	0.35	0.07
Uniform Delay, d1	6.1	11.3		17.5	8.1		46.4	51.0		50.6	47.6	45.8
Progression Factor	1.82	2.42		0.89	0.70		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	0.5		0.2	1.6		0.2	22.2		42.2	0.3	0.0
Delay (s)	11.2	28.0		15.9	7.3		46.6	73.3		92.7	47.9	45.9
Level of Service	B	C		B	A		D	E		F	D	D
Approach Delay (s)		27.2			7.8			70.2				56.1
Approach LOS		C			A			E				E
Intersection Summary												
HCM 2000 Control Delay			27.6				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			77.9%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
123: Dayton St & Montview Blvd





















2035 PM Road Diet
Montview PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1290	215	95	1400	25	145	70	75	45	70	40
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.5	5.5	4.0	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1918		1863	1955		1863	1961	1667	1863	1961	1667
Flt Permitted	0.06	1.00		0.05	1.00		0.50	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	111	1918		105	1955		984	1961	1667	1366	1961	1667
Peak-hour factor, PHF	0.67	0.85	0.84	0.67	0.91	0.79	0.64	0.75	0.81	0.72	0.66	0.89
Adj. Flow (vph)	75	1518	256	142	1538	32	227	93	93	62	106	45
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	82	0	0	41
Lane Group Flow (vph)	75	1770	0	142	1570	0	227	93	11	62	106	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	76.1	70.9		84.8	75.6		23.3	14.3	14.3	18.1	11.7	11.7
Effective Green, g (s)	76.1	70.9		84.8	75.6		23.3	14.3	14.3	18.1	11.7	11.7
Actuated g/C Ratio	0.63	0.59		0.71	0.63		0.19	0.12	0.12	0.15	0.10	0.10
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.5	5.5	4.0	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	146	1133		219	1231		256	233	198	232	191	162
v/s Ratio Prot	0.02	c0.92		c0.05	c0.80		c0.07	0.05		0.01	0.05	
v/s Ratio Perm	0.30			0.41			c0.11		0.01	0.03		0.00
v/c Ratio	0.51	1.56		0.65	1.28		0.89	0.40	0.06	0.27	0.55	0.03
Uniform Delay, d1	27.8	24.5		34.4	22.2		45.9	48.9	46.9	44.8	51.7	49.0
Progression Factor	1.03	1.52		0.95	1.06		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	256.6		2.7	127.4		27.9	0.4	0.0	0.2	2.0	0.0
Delay (s)	29.8	293.9		35.3	151.1		73.8	49.3	46.9	45.0	53.6	49.0
Level of Service	C	F		D	F		E	D	D	D	D	D
Approach Delay (s)		283.2			141.5			62.2			50.1	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	191.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
129: Havana St & Montview Blvd

2035 PM Road Diet
Montview PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	970	295	230	1230	25	255	95	155	10	75	10
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0		4.0	4.0		4.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	1897		1863	1954		1863	1778		1863	1913	
Flt Permitted	0.08	1.00		0.07	1.00		0.32	1.00		0.57	1.00	
Satd. Flow (perm)	152	1897		138	1954		618	1778		1118	1913	
Peak-hour factor, PHF	0.69	0.85	0.94	0.75	0.84	0.75	0.83	0.80	0.80	0.75	0.56	0.38
Adj. Flow (vph)	22	1141	314	307	1464	33	307	119	194	13	134	26
RTOR Reduction (vph)	0	7	0	0	1	0	0	57	0	0	6	0
Lane Group Flow (vph)	22	1448	0	307	1496	0	307	256	0	13	154	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	51.7	51.7		78.0	78.0		33.0	33.0		14.0	14.0	
Effective Green, g (s)	51.7	51.7		78.0	78.0		33.0	33.0		14.0	14.0	
Actuated g/C Ratio	0.43	0.43		0.65	0.65		0.28	0.28		0.12	0.12	
Clearance Time (s)	5.0	5.0		4.0	4.0		4.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	1.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	65	817		395	1270		325	488		130	223	
v/s Ratio Prot		c0.76		0.14	c0.77		c0.12	0.14			0.08	
v/s Ratio Perm	0.15			0.37			0.14			0.01		
v/c Ratio	0.34	1.77		0.78	1.18		0.94	0.53		0.10	0.69	
Uniform Delay, d1	22.8	34.1		35.6	21.0		39.4	36.9		47.4	50.9	
Progression Factor	1.20	1.18		0.73	1.38		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.3	350.3		4.6	84.8		35.0	0.5		0.1	6.9	
Delay (s)	35.6	390.6		30.5	113.8		74.4	37.3		47.5	57.8	
Level of Service	D	F		C	F		E	D		D	E	
Approach Delay (s)		385.4			99.6			55.7			57.0	
Approach LOS		F			F			E			E	
Intersection Summary												
HCM 2000 Control Delay		194.7					HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio		1.46										
Actuated Cycle Length (s)		120.0					Sum of lost time (s)		18.0			
Intersection Capacity Utilization		109.4%					ICU Level of Service		H			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
139: Moline St & Montview Blvd

2035 PM Road Diet
Montview PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	800	55	30	1265	50	30	70	30	55	186	70
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	4.5		4.0	4.5		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1863	1939		1863	1949		1863	1845		1863	1961	1667
Flt Permitted	0.05	1.00		0.20	1.00		0.25	1.00		0.54	1.00	1.00
Satd. Flow (perm)	91	1939		399	1949		496	1845		1061	1961	1667
Peak-hour factor, PHF	0.88	0.93	0.81	0.65	0.89	0.85	0.69	0.89	0.59	0.68	0.84	0.82
Adj. Flow (vph)	34	860	68	46	1421	59	43	79	51	81	221	85
RTOR Reduction (vph)	0	2	0	0	1	0	0	20	0	0	0	74
Lane Group Flow (vph)	34	926	0	46	1479	0	43	110	0	81	221	11
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	89.6	86.5		91.8	87.6		15.8	15.8		15.8	15.8	15.8
Effective Green, g (s)	89.6	86.5		91.8	87.6		15.8	15.8		15.8	15.8	15.8
Actuated g/C Ratio	0.75	0.72		0.76	0.73		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	4.5		4.0	4.5		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	113	1397		356	1422		65	242		139	258	219
v/s Ratio Prot	c0.01	0.48		0.00	c0.76			0.06			c0.11	
v/s Ratio Perm	0.22			0.09			0.09			0.08		0.01
v/c Ratio	0.30	0.66		0.13	1.04		0.66	0.45		0.58	0.86	0.05
Uniform Delay, d1	32.8	9.0		8.1	16.2		49.6	48.1		49.0	51.0	45.5
Progression Factor	2.63	2.92		0.97	0.62		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	0.2		0.0	29.3		17.8	0.5		4.0	22.5	0.0
Delay (s)	86.4	26.4		7.9	39.2		67.4	48.6		53.0	73.5	45.6
Level of Service	F	C		A	D		E	D		D	E	D
Approach Delay (s)		28.5			38.3			53.3			63.1	
Approach LOS		C			D			D			E	
Intersection Summary												
HCM 2000 Control Delay		39.2			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		0.99										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			13.5				
Intersection Capacity Utilization		90.8%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

APPENDIX C

Appendix C: Survey Questions and Results



Questionnaire for Public Meeting- Alternatives Presentation February 11, 2015

ABOUT YOU

1. Are you a:
 Resident Business Owner Business Employee Interested Citizen Other _____
2. I live on, or very near, Montview Boulevard I use Montview Boulevard to commute to: Home Work School
3. What portion of Montview Boulevard do you most frequently travel through?
 West/Denver Boundary Central East /Near Schools I try to avoid Montview
Other: _____
4. How do you travel along Montview Boulevard?
 Walk Run Bicycle Car Bus Other _____
5. How do you feel about the level of safety for pedestrians and cyclists along the Montview Boulevard?
 Very Safe Safe Neutral Unsafe Very unsafe
6. What are the most desirable features of Montview Boulevard today?
Comment: _____
7. What are the least desirable features of Montview Boulevard today?
Comment: _____

PREFERRED OPTIONS

8. Which Option for each zone do you prefer?
- Commercial Zone: Enhanced Existing Enhanced Existing with Separated Bikeway
Why? _____
- West Residential Zone: Enhanced Existing with Separated Bikeway Mixed Bike & Pedestrian
Why? _____
- East Residential Zone: Road Diet with Separated Bikeway Buffered Bicycle Lane
Why? _____

ADDITIONAL COMMENTS:

Please return to consultant representatives (linda@lindawilson.net) or City of Aurora: Karen Hancock (khancock@aurorgov.org)





Survey Results

Alternatives Public Meeting
 February 11, 2015
 North Middle School
 12095 E. Montview Boulevard, Aurora

54 surveys were received at the meeting, of them two are Spanish

About You:

1. Resident – 44
 Business Owner – 4
 Resident and Business Owner - 1
 Business Employee – 1
 Interested Citizen – 1
 Other – 1 (City)
 No answer – 1
2. 44 live on or very near Montview Boulevard
 Commute to: Home - 19 Work –15 School – 3
 6 use Montview Boulevard to commute to: Home – 3 Work – 6 School – 0
 4 No answer
3. **Portion of Montview most frequently traveled**
 West/Denver Boundary - 31
 Central - 29
 East / Near Schools- 28
 I try to avoid Montview – 2
 No answer - 2
 Other Comments
 - From Central Park to Medical Campus
 - Use Montview all the way to Colorado
 - Peoria to Dallas a.m., Dallas to Peoria p.m.
 - Use the whole thing 5 days a week
4. **How do you travel along Montview Boulevard?**
 Walk – 12 Run – 2 Bicycle – 13 Car – 52 Bus – 10 Other -0
5. **How do you feel about the safety for pedestrians and cyclists along Montview Boulevard?**
 Very safe - 0
 Safe - 6
 Neutral - 15
 Unsafe - 23
 Very Unsafe – 7
 No answer - 2
 Comment:
 - Unsafe to bike, neutral to walk
6. **What are the most desirable features of Montview Boulevard today?**
 - Trees, but need to replace missing ones to get beautiful canopy
 - Quieter – I love the Boulevard between Monaco and City Park
 - Access to businesses and southerly ways to Colfax
 - It's very wide

- Opportunity
- The lots of property, the tree lines and the brick homes
- The property with beautiful homes
- Nicely kept property
- Trees are old and beautiful
- Goes straight to Denver, bus stops are close to home
- It's spacious
- Traffic flow
- Trees
- Four lanes moves traffic
- Restaurants, shops, RTD, bike lane but I don't trust it
- Two lanes not too many lights
- An interesting mix of small businesses – good traffic flow
- None, it needs an overhaul
- Not as much traffic as will be if proposal passes
- East access to Peoria, Stapleton, Colorado Boulevard
- Double lanes of traffic
- Bike lane
- I don't think it's a big issue, I'm on Montview blvd. on a daily basis and maybe its not during high traffic volumes
- The residences are well tended
- Having widened sidewalks as separate bike lanes
- Central location
- It's a good through street
- Width
- Straight shot to downtown
- None really
- Traffic roadways are pretty clean & motorists follow rules of the road sometimes
- The avenue is very wide
- Fast transit in and out of neighborhood
- Easy in any direction to get where I'm going
- Wideness great view going west
- Few lights between Central Park and Peoria
- Low traffic
- Left turn lanes that will hold upwards of five cars vs Colfax three cars max
- Straight wide shot downtown
- Connectivity

No comment – 11

7. What are the least desirable features of Montview Boulevard today?

- Safety
- Dividers west of Havana that can be hit with mirrors if one is crowded to the left. High dividers are getting beat up with cars and some trees are dying
- Run down looking businesses & garbage
- Bike lane not protected
- Haphazard pedestrians crossing wherever they want between Dayton & Geneva and kids crossing crazy by North Middle School, unsafe feeling on bikes between Central Park & Peoria
- Hard for pedestrians to cross, don't like the shared bike lane
- The last beautification that was tried on Montview starting at Galena west to Chester – real trashy looking
- Old dead trees
- Bad visibility turning from cross street
- Bicyclists blowing through lights and signs
- Traffic congestion
- Dirty
- Congestion, pot holes, glass, sand
- Vehicles driving fast, peds crossing in middle of Montview
- Too much concrete, too much of a raceway
- Speedy drivers & lack of protected bike lane
- Parking on street
- The businesses need updating
- The area is not as pretty as Stapleton but it's different economic level. With Anschutz and Stapleton surrounding this area I'm sure businesses will realize there will be plenty of transformation



- Bike lane
- Medians from Fulton to Dallas. City has let trees die and the maintenance could be eliminated. Car and bike sharing lane dangerous
- Original Aurora liquor store, Montview Bar & Grill, Ethnic stores do not look good, Krentai Grocery & Mexican grocery store
- Too many people not using the proper street crossing rules with their children
- Businesses need remodeled
- No landscaping or people friendly aspects
- Garbage and too many signs
- Too bumpy, too much traffic, looks bad around Clinton
- Shabby bus stops, sidewalk next to roadway is unsafe and ugly
- Very heavy traffic at early and late hours, excess speeds on weekends, Saturday morning and Sunday Evenings
- Bike lanes and lack of marked crosswalks
- Scary to cross
- Sidewalks need to be modified
- People darting across the road, not safe for bikes or ped, bus stops not near intersections with lights so people have a tendency to cross in the middle of the road
- Streets need to be repaved, trees have not been maintained and have died, bus stops are a mess
- Traffic
- The fast traffic
- The crazy parking situation is unsafe, drunk drivers, fast traffic
- Not well maintained
- No bike lane
- Width, visibility & height, lack of beauty
- Confusing to drive along, lanes shift between Dallas and Syracuse going west parts of the street need repaving. Trees need to be replaced, commercial area is very crappy looking. Needs upgrading. Bus stops look terrible. Clean up the median and replace them
- Bike lane unprotected, bus traffic
- Turning lane needs to be clearer for each direction when left turn
- Not very clean street, trash and litter
- Lack of safe pedestrian crossing options, lack of lighting, poor overall aesthetics
- Too wide

No comment – 6

Preferred Options:

8. Which Option for each zone do you prefer?

Commercial Zone Enhanced Existing – 11 Why:

- I feel bicyclists could use 19th Ave and 22nd
- Because it allows for parking
- Businesses need parking
- With multi-use path
- Because of heavy traffic, more controls, use more lights, more police
- Keep bike travel as a safe option not 22nd street fro commuters
- Traffic congestion, because traffic goes to one lane each way

Enhanced existing with Separated Bikeway – 28 Why:

- Better for businesses
- Don't like mixing peds with bikes
- Safety barriers between cars, bikes, peds
- Safer for bicyclists and eliminates cars changing lanes due to a slow biker ahead
- Safety
- Bicycle drivers ignore all signs
- Like in Europe
- Bikeways are important but people are not educated on how to be on the road with bike users
- Better flow of traffic, protect the cyclist

- Traffic
- Designated bike space
- Bike lanes, sidewalks and no on street parking
- Businesses have parking lots. Bikes can still bike, no on street parking
- Bicyclists stay on Montview not be diverted to 22nd
- Like the separated bike lane, larger side walk

No Comment – 16

West Residential Zone Enhanced existing with Separated Bikeway – 26 Why:

- Safety
- It allows for parking
- Mixing bikes and walking kids is a mess
- Keep bike commuters away from peds
- Traffic flow
- Designated bike space
- Bikers need their own lane or on street with cars. Not with walkers
- Larger sidewalk designated bike lane

Mixed Bike & Pedestrian – 8 Why:

- Raised bicycle lane looks dangerous
- Safety

No Comment – 20

East Residential Zone Road diet with Separated Bikeway – 19 Why:

- I really like the aesthetics and it will be the safest
- For the whole street from Yosemite to Peoria
- Safe Bikeway
- Safety
- Separating school kids in the median is the safest
- Better looking
- Bikes and peds are far from cars
- I like the bus pull outs for safety reasons

Buffered Bicycle Lane – 20 Why:

- Safety
- Middle school peds with bikes would be a disaster, those kids don't pay attention
- Larger side walks for pedestrians
- Because we can have on street parking in the buffer lane & bikes should be on the street with cars
- On street parking very important
- The Road Diet offers too many opportunities for garbage accumulation
- Neither option, one lane of traffic each way is insane

No comment – 15

Additional Comments:

- I do like the bikes on 22nd. The medians we do have now are not routinely cleaned. Adding more medians will only add to the problem of keeping the area free of trash.
- I prefer that bicycles use 22nd and NOT Montview AT ALL
- Taxes?
- I would like to see anything maintained

- We live on Joliet St. and observe many vehicles barely pausing at the stop sign on Joliet & Montview. Many drivers are texting & not paying attention to surroundings. Two blocks to south is 17th Ave., heavy traffic but very sane driving observing speed limits etc.. It is my preferred exit and entry to Joliet and my home.
- Lower speeds at schools should be posted. Eliminate all parking on Montview. Why six - foot side walks? Two lanes of traffic into Fitz would help avoid back up of cars
- The presentation was great, thank you for taking the time to allow the community to view your project. I wish that there would have been more community representation. Perhaps marketing in the schools, recreation centers, businesses and their owners, etc. Also since these projects will always have City partnership, why not bring on more City staff to answer the un-answered questions.
- I'm not crazy about any of it. The city can't seem to maintain the 3-4 medians that exist.
- The demonstration meeting will be helpful. Consider round-about @ Havana intersection
- Bike & sidewalks, who cleans/shovels?
- My home is on Montview and on-street parking is most important. I also like having wide sidewalks for kids and adults
- It is really important that there is parking option on Montview Blvd
- Slow down traffic in school zones like they do every other city
- Lived here since late 80's and actually enjoy where I live except for all the apartment complex's and the traffic associated with them. Pretty good job with snow removal
- Timing of street lights
- No paved alleys and people through trash including mattresses, chairs etc.
- Thank you for having this meeting. All of these options are a huge improvement over current conditions.
- Getting harder to cross Montview @ Nome St. more traffic either on foot or trying to turn left in car. 22nd bike lane sounds good
- Developing architectural design consistency much like modern shopping area like Mississippi & Havana. Installing pedestrian activated crossing signals especially between long areas, between exiting traffic lights and close to bus stops.
- Anschutz needs to be at the table. They have a vested interest in making this redevelopment happen
- Seems best to be consistent all the way down Montview with a bike lane. And seems safer to have a bike lane
- Enhance bus stops for comfort not sleeping and safety, trees for shade. Consider electronic boards with times paid with ads. Ideally- Separate street form pedestrians with trees look at Broadway south of I-25 to see their new design
- You really need to talk to the bike commuters that are going to the medical campus which I believe impact the majority of who is currently biking Montview.
- Further move 22nd is a terrific idea, 17th is the alternate all medical campus bike commuters always use. Also better lighting important for early morning commute.
- Make sure medians are planted with xeriscape
- This needs to be done for safer flow of traffic. Both bike and auto. No parking on Montview Blvd. This street is too big for parking. Very few people park on Montview today.

APPENDIX D

Appendix D: Cost Estimate

October 1, 2015

PREFERRED ALTERNATIVES

Phase 1 - Westerly Creek Bridge to Dayton St	Quantity	Unit	Unit Cost	Total	Notes
Enhanced Existing with Separated Bikeway w/ Existing Median Removal	1,300	LF	\$ 1,407	\$ 1,829,100	See Table 2A for cost detail
Traffic Signal Modification at Clinton Street	1	LS	\$ 105,000	\$ 105,000	
Traffic Signal Modification at Dayton Street	1	LS	\$ 105,000	\$ 105,000	
General Conditions	1	LS	\$ 203,910	\$ 203,910	
			Subtotal	\$ 2,243,010	
5% Mobilization, 5% Traffic Control, 25% Contingency, 20% Design Soft Costs				\$ 1,233,656	
			Phase 1 Grand Total	\$ 3,476,666	
Phase 2 - Yosemite St. to Westerly Creek Bridge	Quantity	Unit	Unit Cost	Total	Notes
Enhanced Existing with Separated Bikeway w/o Existing Median Removal	1,350	LF	\$ 1,357	\$ 1,831,950	See Table 2B for cost detail
Traffic Signal Modification at Yosemite Street	1	LS	\$ 105,000	\$ 105,000	
General Conditions	1	LS	\$ 193,695	\$ 193,695	
			Subtotal	\$ 2,130,645	
5% Mobilization, 5% Traffic Control, 25% Contingency, 20% Design Soft Costs				\$ 1,171,855	
			Phase 2 Grand Total	\$ 3,302,500	
Phase 3 - Dayton St to Havana St	Quantity	Unit	Unit Cost	Total	Notes
Enhanced Existing with Separated Bikeway w/ Existing Median Removal (Dayton St to Galena St)	1,650	LF	\$ 1,407	\$ 2,321,550	See Table 2A for cost detail
Enhanced Existing with Separated Bikeway w/o Existing Median Removal (Galena St to Havana St)	1,000	LF	\$ 1,357	\$ 1,357,000	See Table 2B for cost detail
Ped Signal Modification east of Florence St	1	LS	\$ 80,000	\$ 80,000	
Traffic Signal Modification at Havana St	1	LS	\$ 105,000	\$ 105,000	
General Conditions	1	LS	\$ 386,355	\$ 386,355	
			Subtotal	\$ 4,249,905	
5% Mobilization, 5% Traffic Control, 25% Contingency, 20% Design Soft Costs				\$ 2,337,448	
			Phase 3 Grand Total	\$ 6,587,353	

Reference Notes p. D-2

Phase 4 - Havana St to Oswego St	Quantity	Unit	Unit Cost	Total	Notes
Enhanced Existing with Separated Bikeway w/o Existing Median Removal (Havana St to Iola St)	330	LF	\$ 1,357	\$ 447,810	See Table 2B for cost detail
Road Diet with Separated Bikeway (Iola St to Oswego St)	4,300	LF	\$ 1,711	\$ 7,357,300	See Table 2C for cost detail
Traffic Signal Modification at Moline St	1	LS	\$ 130,000	\$ 130,000	
Traffic Signal Modification at Oswego St	1	LS	\$ 130,000	\$ 130,000	
General Conditions	1	LS	\$ 806,511	\$ 806,511	
			Subtotal	\$ 8,871,621	
5% Mobilization, 5% Traffic Control, 25% Contingency, 20% Design Soft Costs				\$ 4,879,392	
Phase 4 Grand Total				\$ 13,751,013	
Phase 5 - Oswego St to Peoria St	Quantity	Unit	Unit Cost	Total	Notes
Assumed to be reconstructed when Montview Blvd / Peoria St intersection is improved with transition & geometric layout determined at that time.					
GRAND TOTAL OF ALL PHASES				\$ 27,117,531	
Distance (Yosemite St to Oswego St)				9,930	ft
Average Cost per Linear Foot				\$ 2,731	per linear foot

Notes:

1. Costs are in 2015 dollars.
2. The sections are subject to modification as design is advanced.
3. It is assumed that existing underground and overhead utilities can remain in place.
4. Valve boxes and manhole rim elevation adjustments are part of contingency.
5. Additional storm inlets and a larger storm sewer pipe within Montview Blvd. may be needed due to lowering the flowline 5-inches west of Havana Street and lowering the flowline 12-inches east of Havana Street. 30% design will determine this design aspect in the future.
6. Matrix Design Group, Inc. does not guarantee or warranty cost opinions shown above. Opinions are provided using standard unit costing and gross estimating techniques based on our knowledge of this corridor and experience on similar projects.

POTENTIAL BUFFERED BIKE LANE INTERIM PHASE					
<i>Existing lane striping remains. Buffered bike lane added.</i>					
	Quantity	Unit	Unit Cost	Total	Notes
Interim Buffered Bike Lane (Yosemite St to Peoria St)	10,625	LF	\$ 19.79	\$ 210,246	See Table 2D for cost detail
General Traffic Signal Timing Adjustments	1	LS	\$ 50,000	\$ 50,000	See Note 2
General Conditions	1	LS	\$ 26,025	\$ 26,025	
			Subtotal	\$ 286,271	
5% Mobilization, 5% Traffic Control, 15% Contingency, 20% Design Soft Costs				\$ 128,822	Lower contingency because there are less unknowns with a striping project.
Buffered Bike Lane Interim Grand Total				\$ 415,093	
Distance (Yosemite St to Peoria St)				10,560	ft
Average Cost per Linear Foot				\$ 39	per linear foot

Notes:

1. *Costs are in 2015 dollars.*
2. *Interim buffered bike lanes would be taken out of the existing 8' parking lane and should not require modifications to existing traffic signal equipment. \$50,000 is provided in the opinion of probably cost to adjust traffic signal timing, if needed; however, depending on the desired operations, identified traffic signal modifications may be necessary at additional cost.*
3. *Where the outside through lane plus parking lane is less than 18', the dashed lane line should be removed and the left through lane narrowed to provide the 18' needed to provide a 10' through lane, 2' buffer, and 6' bike lane. The buffer can be narrowed if needed, but should not go narrower than 1.5'. A line item has been included in the opinion of probable cost to make this adjustment where needed.*
4. *Matrix Design Group, Inc. does not guarantee or warranty cost opinions shown above. Opinions are provided using standard unit costing and gross estimating techniques based on our knowledge of this corridor and experience on similar projects.*

Potential Scope Additions					
New Traffic Signal at Fulton St + Removal of Existing Ped Signal west of Fulton St	1	LS	\$ 400,000	\$ 400,000	\$375k for traffic signal + \$25k to remove existing ped signal. See note below.
New Traffic Signal at Kingston Street	1	LS	\$ 375,000	\$ 375,000	See note below.
New Traffic Signals at Clinton St, Dayton St, Havana St, Moline St and Oswego St	5	EA	\$ 400,000	\$ 2,000,000	Potential to replace existing traffic signals if funds become available (\$375k traffic signal, \$25k removal of existing)
New Street Lights	120	EA	\$ 10,000	\$ 1,200,000	Potential to replace existing street lights at street corners & add street lights mid-block to reduce dark spots if funds become available

Note: See the Traffic Analysis Section in the Montview Corridor Study Summary Report for additional information.

TABLE 2B - West Residential & Commercial Zones Enhanced Existing with Separated Bikeway

Typical hard costs per block for blocks without an existing median

Block Length 330 FT

Notes:

1. Section subject to modification as design is advanced.
2. It is assumed that existing underground and overhead utilities can remain in place.
3. Valve boxes and manhole rim elevation adjustments are part of contingency.
4. Additional storm inlets and a larger storm sewer pipe within Montview Blvd. may be needed due to lowering the flowline 5-inches. 30% design will determine this design aspect in the future.
5. Traffic signal modifications are shown in Table 1.

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL	
DEMOLITION					
REMOVE ASPHALT (MONTVIEW)	21,780	SF	\$ 3.50	\$ 76,230.00	
REMOVE ASPHALT (N-S STREET)	1,120	SF	\$ 3.50	\$ 3,920.00	Assume 35' of N-S streets will need to be removed for tie-in purposes
REMOVE CURB & GUTTER	700	LF	\$ 12.00	\$ 8,400.00	
REMOVE SIDEWALK (MONTVIEW)	2,320	SF	\$ 3.00	\$ 6,960.00	
REMOVE SIDEWALK (N-S STREET)	560	SF	\$ 3.00	\$ 1,680.00	
REMOVE PED RAMP	4	EA	\$ 450.00	\$ 1,800.00	
REMOVE & HAUL AWAY SOIL (5")	275	CY	\$ 27.00	\$ 7,425.00	New flowline is 5" lower than exist flowline.
REMOVE INLET	2	EA	\$ 2,500.00	\$ 5,000.00	
REMOVE RCP	40	LF	\$ 41.00	\$ 1,640.00	
STORMWATER MANAGEMENT	1	LS	\$ 5,000.00	\$ 5,000.00	
SUBTOTAL DEMOLITION				\$ 118,060.00	
NEW IMPROVEMENTS					
FINE GRADING (ASPHALT, SIDEWALK, BIKE LANE) (MONTVIEW)	2,850	SY	\$ 1.35	\$ 3,847.50	
SCARIFY AND RECOMPACT (12") (MONTVIEW)	2,007	SY	\$ 1.65	\$ 3,311.55	Pavement section to be confirmed at 30% design.
AGGREGATE BASE COURSE (13") (MONTVIEW)	2,007	SY	\$ 23.00	\$ 46,161.00	Pavement section to be confirmed at 30% design.
ASPHALT PAVEMENT (7") (MONTVIEW)	1,677	SY	\$ 41.00	\$ 68,757.00	Pavement section to be confirmed at 30% design.
CURB & GUTTER (MONTVIEW)	580	LF	\$ 25.00	\$ 14,500.00	
6" CONC SIDEWALK/BIKEWAY W/ FIBERMESH (MONTVIEW)	7,748	SF	\$ 7.00	\$ 54,236.00	
12" RECONDITIONING FOR SIDEWALK/BIKEWAY (MONTVIEW)	7,748	SF	\$ 8.00	\$ 61,984.00	
CORNER PED RAMPS	4	EA	\$ 2,500.00	\$ 10,000.00	
FINE GRADING (ASPHALT, SIDEWALK) (N-S STREETS)	172	SY	\$ 1.35	\$ 232.20	
SCARIFY AND RECOMPACT (12") (N-S STREETS)	152	SY	\$ 1.65	\$ 250.80	Pavement section to be confirmed at 30% design.
AGGREGATE BASE COURSE (8") (N-S STREETS)	152	SY	\$ 14.00	\$ 2,128.00	Pavement section to be confirmed at 30% design.
ASPHALT PAVEMENT (5") (N-S STREETS)	125	SY	\$ 30.00	\$ 3,750.00	Pavement section to be confirmed at 30% design.
CURB & GUTTER (N-S STREETS)	140	LF	\$ 25.00	\$ 3,500.00	
6" CONC SIDEWALK (N-S STREETS)	560	SF	\$ 7.00	\$ 3,920.00	
12" RECONDITIONING FOR SIDEWALK (N-S STREETS)	560	SF	\$ 8.00	\$ 4,480.00	
ROADWAY LIGHTING	0	EA	\$ -	\$ -	Assume exist street lights at each intersection can remain & no additional lighting is needed.
SIGNING & STRIPING	1	LS	\$ 10,000.00	\$ 10,000.00	
MEDIAN LANDSCAPING	750	SF	\$ 25.00	\$ 18,750.00	per Aurora Park, Rec & Open Space recent experience
STORM INLETS	2	EA	\$ 7,700.00	\$ 15,400.00	Assume two inlets per intersection
18" RCP	40	LF	\$ 110.00	\$ 4,400.00	Assume 2-20' pipes per intersection
SUBTOTAL ROADWAY IMPROVEMENTS				\$ 329,610.00	
West Residential & Commercial Zones Enhanced Existing w/ Separated Bikeway				\$ 447,665	per block
Typical hard cost for blocks without an existing median				\$ 1,357	per linear foot



TABLE 2C - East Residential Zone Road Diet with Separated Bikeway

Typical hard costs per block

Block Length 330 FT

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL	
DEMOLITION					
REMOVE ASPHALT (MONTVIEW)	21,780	SF	\$ 3.50	\$ 76,230.00	
REMOVE ASPHALT (N-S STREET)	1,120	SF	\$ 3.50	\$ 3,920.00	Assume 35' of N-S streets will need to be removed for tie-in purposes
REMOVE CURB & GUTTER	700	LF	\$ 12.00	\$ 8,400.00	
REMOVE SIDEWALK (MONTVIEW)	2,320	SF	\$ 3.00	\$ 6,960.00	
REMOVE SIDEWALK (N-S STREET)	560	SF	\$ 3.00	\$ 1,680.00	
REMOVE PED RAMP	4	EA	\$ 450.00	\$ 1,800.00	
REMOVE & HAUL AWAY SOIL (12")	660	CY	\$ 27.00	\$ 17,820.00	New flowline is 12" lower than exist flowline.
REMOVE INLET	2	EA	\$ 2,500.00	\$ 5,000.00	
REMOVE RCP	40	LF	\$ 41.00	\$ 1,640.00	
STORMWATER MANAGEMENT	1	LS	\$ 5,000.00	\$ 5,000.00	
			SUBTOTAL DEMOLITION	\$ 128,450.00	
NEW IMPROVEMENTS					
FINE GRADING (ASPHALT, SIDEWALK, BIKE LANE) (MONTVIEW)	1,320	SY	\$ 1.35	\$ 1,782.00	
SCARIFY AND RECOMPACT (12") (MONTVIEW)	1,320	SY	\$ 1.65	\$ 2,178.00	Pavement section to be confirmed at 30% design.
AGGREGATE BASE COURSE (13") (MONTVIEW)	1,320	SY	\$ 23.00	\$ 30,360.00	Pavement section to be confirmed at 30% design.
ASPHALT PAVEMENT (7") (MONTVIEW)	1,064	SY	\$ 41.00	\$ 43,624.00	Pavement section to be confirmed at 30% design.
CURB & GUTTER (MONTVIEW)	580	LF	\$ 25.00	\$ 14,500.00	
6" CONC SIDEWALK/BIKEWAY W/ FIBERMESH (MONTVIEW)	8,046	SF	\$ 7.00	\$ 56,322.00	
12" RECONDITIONING FOR SIDEWALK/BIKEWAY (MONTVIEW)	8,046	SF	\$ 8.00	\$ 64,368.00	
CORNER PED RAMPS	4	EA	\$ 2,500.00	\$ 10,000.00	
FINE GRADING (ASPHALT, SIDEWALK) (N-S STREETS)	514	SY	\$ 1.35	\$ 693.90	
SCARIFY AND RECOMPACT (12") (N-S STREETS)	455	SY	\$ 1.65	\$ 750.75	Pavement section to be confirmed at 30% design.
AGGREGATE BASE COURSE (8") (N-S STREETS)	455	SY	\$ 14.00	\$ 6,370.00	Pavement section to be confirmed at 30% design.
ASPHALT PAVEMENT (5") (N-S STREETS)	374	SY	\$ 30.00	\$ 11,220.00	Pavement section to be confirmed at 30% design.
CURB & GUTTER (N-S STREETS)	140	LF	\$ 25.00	\$ 3,500.00	
6" CONC SIDEWALK (N-S STREETS)	560	SF	\$ 7.00	\$ 3,920.00	
12" RECONDITIONING FOR SIDEWALK (N-S STREETS)	560	SF	\$ 8.00	\$ 4,480.00	
RESET EXISTING STREET LIGHT	2	EA	\$ 3,000.00	\$ 6,000.00	Assume exist street lights can be reset to the new curb line & no additional lighting is needed.
SIGNING & STRIPING	1	LS	\$ 10,000.00	\$ 10,000.00	
TREE LAWN LANDSCAPING	5,840	SF	\$ 25.00	\$ 146,000.00	per Aurora Park, Rec & Open Space recent experience
STORM INLETS	2	EA	\$ 7,700.00	\$ 15,400.00	Assume two inlets per intersection
18" RCP	40	LF	\$ 110.00	\$ 4,400.00	Assume 2-20' pipes per intersection
			SUBTOTAL ROADWAY IMPROVEMENTS	\$ 435,870.00	
East Residential Zone Road Diet w/ Separated Bikeway				\$ 564,320	per block
Typical hard cost per block				\$ 1,711	per linear foot

Notes:

1. Section subject to modification as design is advanced.
2. It is assumed that existing underground and overhead utilities can remain in place.
3. Valve boxes and manhole rim elevation adjustments are part of contingency.
4. Additional storm inlets and a larger storm sewer pipe within Montview Blvd. may be needed due to lowering the flowline 5-inches. 30% design will determine this design aspect in the future.
5. Traffic signal modifications are shown in Table 1.



Notes:

1. Section subject to modification as design is advanced.
2. Striping on each block is from curb return to curb return (approximately 275' per block)
3. Traffic Signal modifications are shown in Table 1.

TABLE 2D

Potential Buffered Bike Lane Interim Phase

while maintaining 4 thru lanes

Linear Construction Costs (Signing & Striping Only)

Block Length 330 FT

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL	
REMOVE EXISTING BIKE SHARROW MARKINGS	4	EA	\$210.00	\$840.00	
REMOVE EXISTING DASHED LANE LINE	550	LF	\$1.00	\$550.00	where exist outside lane + parking is less than 18'
4" WHITE DASHED LANE LINE	550	LF	\$0.50	\$275.00	basis is \$2.00/lf with 10' stripe and 30' gap.
6" WHITE BIKE LANE LINE	390	LF	\$3.00	\$1,170.00	
6" WHITE EDGE LINE	390	LF	\$3.00	\$1,170.00	
6" WHITE DOTTED BIKE LANE LINE	80	LF	\$1.00	\$80.00	basis is \$3/lf with 2' stripe & 4' gap at alley crossings (30') and 50' from intersection approaches.
6" WHITE DOTTED EDGE LINE	80	LF	\$1.00	\$80.00	basis is \$3/lf with 2' stripe & 4' gap at alley crossings (30') and 50' from intersection approaches.
BIKE LANE SYMBOL	4	EA	\$550.00	\$2,200.00	2 per block in each direction
BIKE LANE SIGN	1	EA	\$165.00	\$165.00	sign on every other 330' block
SUBTOTAL ROADWAY COST/ L.F. IN 2015 DOLLARS				\$6,530.00	per block
				\$19.79	per linear foot

