



CITY OF ROCHESTER

**WEST MAIN
MULTIMODAL
TRANSPORTATION
+ PLACEMAKING
PLAN**

APPENDICES



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APPENDIX A: IMPLEMENTING A SHORT-TERM STREET DESIGN

In addition to a long-term plan that imagines a fully reconstructed street, a discussion of how to make progress on the project's safety, access, and connectivity goals in the short-term is provided below.

With the long-term vision as a guide, the street can be transformed in stages as funding becomes available. Many aspects of the long-term vision can be achieved on a shorter time frame when the street is repaved or when new development is proposed. While it may not be possible to move curbs and widen sidewalks along the entire street in the short-term, a future repaving project can embrace the spirit of the long-term vision by reducing the number and width of vehicle lanes, installing separated bike lanes, adding more accessible crossings and curb ramps, and providing more furnishings at bus stops.

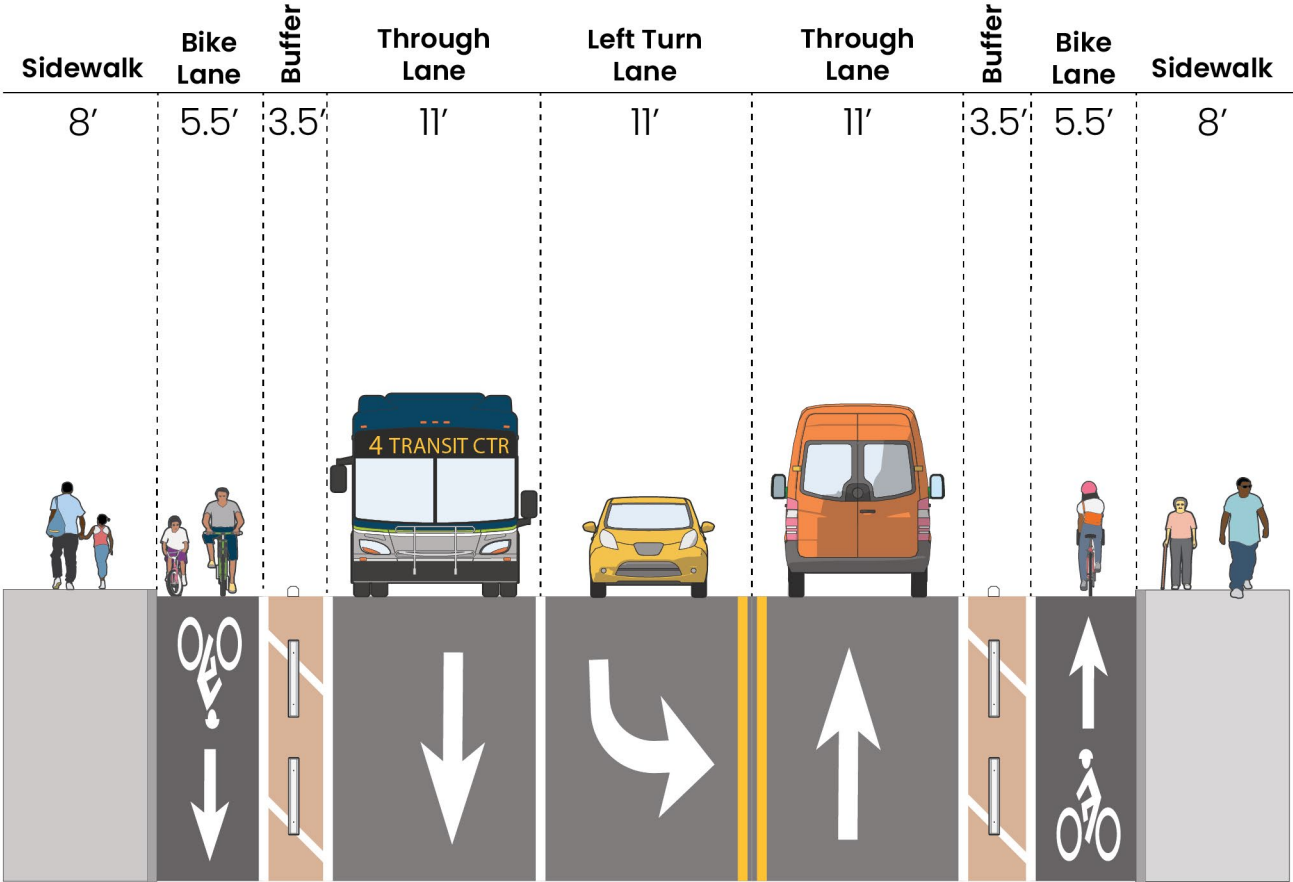
To that end, the following strategies should be considered during repaving or other near-term street projects:

- **Reduce the number of vehicle travel lanes.** Provide one 11-foot travel lane in each direction with left turn lanes as needed for safety or operations.
- **Align signal operations with lane reduction.** With a reduction in travel lanes, all signal phases will need to be adapted to meet the proposed lane assignment. Signal head locations may also need to be adjusted to be properly aligned with the travel lanes.
 - New signal efficiencies may be possible with the revised design; depending on the crosswalk length (which dictates the pedestrian clearance time needed) half cycles may be used for the intersections of West Main Street with Henion Street, Jefferson Avenue, King Street, or Canal Street. These changes could decrease delay for all roadway users.

- **Clarify parking lanes.** Provide 8-foot parking lanes on one or both sides of the street, depending on location and width. Given the varying needs along the street, alternating parking to serve the highest density of businesses can help locate parking in the most desirable locations while also providing a traffic calming effect through lateral lane shifts.
 - Incorporate new on-street parking regulations. New regulations should help encourage turnover during business hours and accommodate overnight parking for residents. Consider adding one or two time-restricted parking spaces on side streets where they meet West Main in order to supplement the availability of short-term customer parking.
 - Incorporate accessible parking spaces into the street. Where needed, the bike lane may be reduced to a minimum of 4 feet wide in order to expand space for a minimum access aisle width of 5 feet. To minimize construction of new mid-block accessible curb ramps, consider locating accessible parking spaces near existing compliant curb ramps at intersections, or directly around the corner on intersecting side streets.
- **Minimize delay for all users with concurrent pedestrian phasing at existing signalized locations.** Recognizing that vehicle travel patterns will likely change with the proposed design, turning movements of vehicles across crosswalks should be further analyzed to ensure a safe and comfortable environment for pedestrians. For crosswalks with a high number (over 250 per hour) of conflicting vehicle turning movements, additional safety precautions should be considered, including use of leading pedestrian intervals (LPIs) or, if indicated, exclusive pedestrian phasing.
 - If LPIs are used, consider using a lagging protected left-turn phase to accommodate left-turn vehicle movements while preserving the leading pedestrian phase.
- **Upgrade bus stops.** Start with benches to provide a basic level of comfort for seniors or others who may need to sit while waiting for the bus. Ensure a sidewalk clear width of no less than four feet is preserved at all times.
- **Install additional crosswalks across West Main.** With fewer lanes to cross, more crossings of West Main will be possible without full signalization. Constructed or ‘quick-build’ curb extensions, rapid flashing beacons, ‘quick-build’ pedestrian refuge islands, and other pedestrian safety features can further augment safety while ensuring crossing opportunities are frequent. For all new crosswalk locations, fully accessible curb ramps must be provided. Priority crossings for short-term installation include West Main at Edgewood Park and West Main at Madison/Reynolds.
 - For any new crosswalks located next to on-street parking, ensure adequate sightlines are provided to preserve visibility between people crossing the street and oncoming drivers.
- **Install separated bike lanes next to the curb.** Bike lanes should be a minimum of five feet wide with a minimum two-foot buffer (three-foot if next to parallel parking).
 - Utilize a high-quality vertical barrier to provide physical separation of bicyclists from parked or moving vehicles. Precast concrete barriers or cast-in-place curb can provide a greater level of protection, require less maintenance, and often look more appealing than flexible bollards. Prioritize durable planter boxes where a business or neighborhood group can commit to regular planting and maintenance.

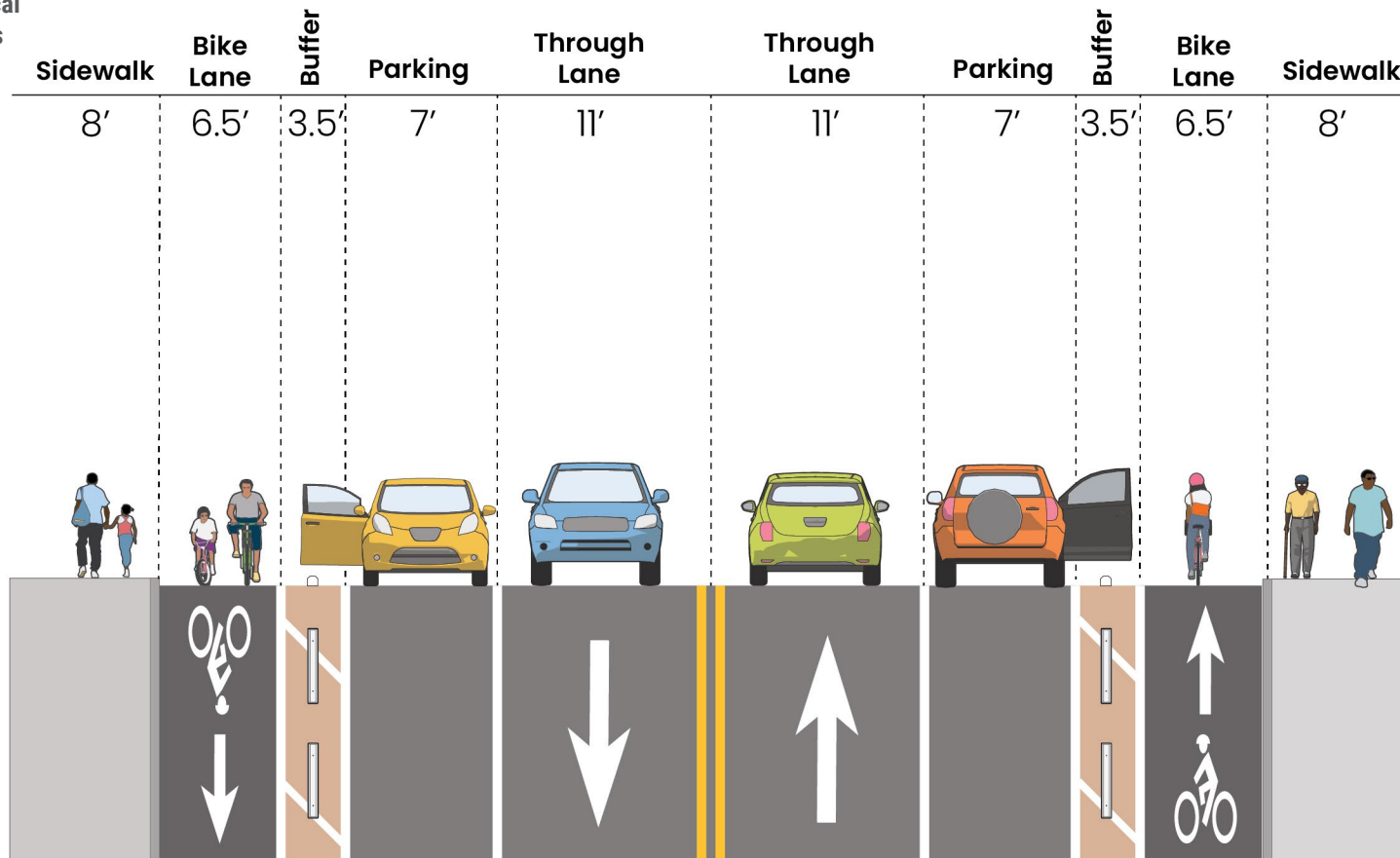
- Where extra spaces is available, consider widening the bike lane to a maximum of 8 feet to help provide access to easier snow plowing operations throughout the winter while still providing a physically separated bike lane. When weighing these design decisions, balancing snowplow access with space for snow storage will be a key consideration.
- Mark conflict zones through intersections and commercial driveways to raise awareness of people biking through the intersections.
- If fully constructed bus islands are not possible in the short-term, utilize conflict zone markings to indicate a shared space for people biking and bus drivers at bus stops.
- Parking-protected bike lanes are a relatively new treatment in Rochester. Consider using educational signage and other communication mechanisms to help people become comfortable with the design and to encourage proper use.

Figure 22. Typical short-term cross section with left turn lane



- **Consider full reconstruction in high priority areas.** Consider moving curbs to widen sidewalks at high-priority locations and where existing businesses could benefit from additional space, such as between Madison and Canal Streets. Reconstruction on a block-by-block basis may be the easiest solution for curb relocation in the short-term to ensure all drainage, utility, and other considerations are fully incorporated.
- Any fully constructed elements completed in the short-term should be fully consistent with long-term plans, including
 - ultimate sidewalk widths, bus stop locations, and drainage and utility needs.
 - Plant trees or vegetation where space permits and where they will not preclude the long-term vision.

Figure 23. Typical short-term cross section with on-street parking





Example of a separated bike lane transitioning through a mixing zone at a bus stop



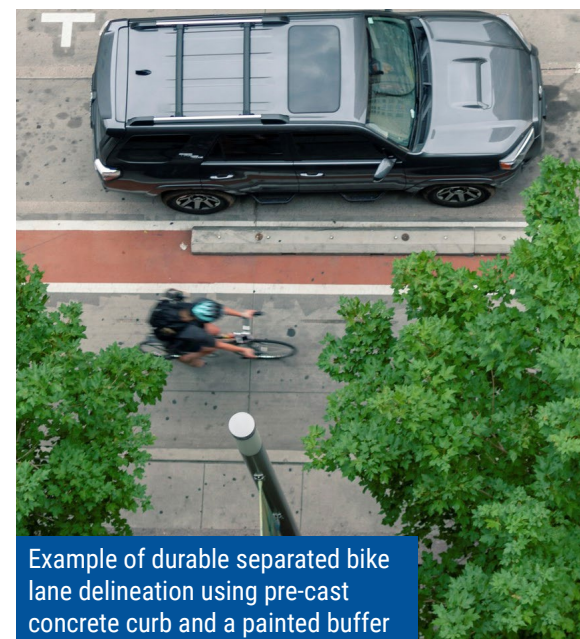
Example of an accessible parking space adjacent to a parking-protected bike lane



Example of durable separated bike lane delineation using pre-cast concrete curb with flexposts



Example of low-profile separated bike lane delineation using fully recycled materials



Example of durable separated bike lane delineation using pre-cast concrete curb and a painted buffer



APPENDIX B: COMMUNITY FEEDBACK

This appendix contains feedback received throughout this process, which began in October 2020 and was completed in November 2021.

Community members, and a steering committee who shared their ideas and feedback during:

- 10 Steering Committee meetings with representation from neighborhood organizations, residents, property and business owners, government officials, and advocates
- 10 Pop-up meetings or events on West Main
- 4 One-on-one stakeholder interviews with community leaders
- 4 Community surveys
- 1 Virtual public meeting

Planning During the COVID-19 Pandemic

This plan acknowledges the unique challenges of having in-depth community conversations during the COVID-19 pandemic while other needs were top of mind for many in the community, including small business owners and under-resourced residents. While many community ideas and suggestions were used to prepare and refine the recommendations in this plan, some viewpoints were not fully captured in this process. As this plan moves toward implementation, sustained and targeted engagement will be necessary to build awareness, allow for additional iteration, and promote collective support for major changes to West Main.

Pre-Engagement Stakeholder Interviews

Highland Planning conducted a series of stakeholder interviews. The purpose of the interviews was to gather initial feedback from stakeholders about challenges and opportunities, as well as insights about how best to engage the community.

Four 15–20-minute interviews were conducted by phone and/or video conference.

Questions:

1. From your perspective, what are some key challenges? Of those challenges, what is the one thing you would want to tackle first?
2. Tell me about your experience on West Main. What is your relationship to the corridor? How do you use it the corridor?
3. If you did not have any budgetary constraints, what do you think are the biggest opportunities/solutions for overcoming these problems/issues?
4. Do you have any concerns about this study?
5. How do you think the community will perceive this study?
6. Are there any hot button issues we should be aware of before we start engaging the community?
7. Who else should we talk to?

From your perspective, what are some key challenges?

Economic Challenges

- Food desert
- Banking desert
- Not enough jobs
- Low incomes

Transportation Challenges

- Too wide, dangerous for pedestrians to cross.
- Unsafe for driving
- Not a lot of good east-west cycling routes though the city, including West Main.
- Transportation is impediment to community development.
- Transportation is impediment to business development

Amenity/Aesthetic Challenges

- Feels bleak for pedestrians
- Needs more bus shelters

Other

- Susan B. Anthony District is in that stretch which is a historic area but no signage directing people to get to it.
- Siloed, disconnected community.

Tell me about your experience on West Main. What is your relationship to the corridor? How do you use the corridor?

- It is a connector to downtown, most of our interviewees used it for commuting
- Transportation safety: unsafe due to fast traffic, difficult parking, poor biking/walking conditions.
- Public Safety: considered unsafe, “Ghetto” perception effects businesses.
- Poor walkability effects businesses and safety, feels “unpleasant”.
- Very siloed, it’s hard to connect to the gated communities or the high rises, and it only has walkable business on a small area from Canal to Jefferson.
- There is an existing business base. Food businesses are a highlight. Some businesses have been there for decades.
- A few trees but not many, and mainly on south side. Few on north side.

If you did not have any budgetary constraints, what do you think are the biggest opportunities/solutions for overcoming these problems/issues?

- Using the street design to make the street feel more community-oriented, to foster the businesses and the residents. Make W. Main more inviting, to connect the siloed communities on an around it. Use art as landmarks creating focal points for the community, e.g. “I will meet you down by the statue”. Façade

improvements, streetscape improvements, Traffic calming, safety improvements, inclusion of a park or other community area.

- Use the example of Brooks Landing to increase public safety by displacing negative activity.
- Spur interest in development by addressing the transportation issues along the corridor like unsafe parking, crashes, low walkability.
- Support for community-based entrepreneurship. Incubators, high-speed internet, flexible leasing options, on-site technical assistance, collaboration with entrepreneurs, capital access, the right products for entrepreneurs.
- Build trust with the community through a transparent process and proactive contact.

Do you have any concerns about this study?

- It’s important for the study to get input from whole community, including residents, businesses, and drivers. You want car traffic on the street to patronize businesses, but commuters also need to get downtown. It will be difficult to involve the residents of the apartments such as the Carriage Factory and Voter’s Block.
- Reconnect fought hard to get bike lanes on the East Main project, and then developers in the area “went to the mayor” and the bike lanes and sidewalks were reduced and more parking was added. It’s concerning that this change from what was originally promised to what was designed could happen on West Main too.
- Don’t tell the community what their problem is. Also don’t just take the problems they report and say “based on that, this is

what we think you should do.” The approach to the study needs to be inclusive, using “co-creation” framing the problems and solutions together.

- Why is the City commissioning a placemaking study when it may or may not have an intent to move forward with a plan and actual change? This practice is inherently harmful and a reason that many neighbors and business owners’ distrust and disengage from big picture neighborhood planning or placemaking study conversations in the most marginalized communities.
- Why are so many of the people that were asked to be part of the planning committee not representative of the West Main/Susan B. Anthony District? How were these people decided on? Why wasn't the community involved in this selection process?
- As a matter of equity, some people should be paid to be part of the committee. Many people on the committee are salaried and are being compensated for their time spent on committee business. Small business owners need to be compensated as well. If you want smooth implementation, you need people in the area who have ownership of the plan, not just input from experts.
- The entire process should be is slowed down. The way we rush through even these few components that have been raised here is a vestige of white supremacy and must be disrupted.

How do you think the community will perceive this study?

- Business community will be in favor and welcome the discussion. They may or may not welcome the outcome but will receive the study in a positive way.

- Residents:
- SBA: Very Positive
- Anthony Square: Positive.
- Changing of the Scenes Neighborhood Association: Anticipated positive
- Homeless population: Unknown, but with St. Peter’s Soup Kitchen on Brown Street there are opportunities to reach out to them
- Housing west of 1872 café, large complex: Unknown
- Warning: A lot of mistrust of government in general right now. Difficult time for government to reach out to the community especially the city government.

Are there any hot button issues we should be aware of before we start engaging the community?

- Existing lack of trust
- Large property owner Marvin Maye can be prickly and opinionated, does not like City Hall and government.
- Impacts to Susan B. Anthony historic district.
- Effects on residents of the apartments west of 1872 Cafe

Who else should we talk to?

- Note: The project team added approximately 130 contacts to our database from these phone calls.

Early Conclusions

Based on what we heard in these interviews, the public engagement plan will include:

- A risk assessment related to the tension between likelihood of implementation and an aspirational process, related to the existing lack of trust
- A stakeholder map showing the main community structures we've identified, giving us a sense of who to reach out to engage groups/communities in the area and avoid the silo problem.
- A plan for an internal process for determining how to use allocated budget to pay stakeholders
- A system for melding virtual and in-person techniques to address digital divide issues.
- A charrette-like system for involving the public in co-creating the visual design scheme.
- A project website where transparent discussion between community members can take place.
- A process to align communications/messaging around identified shared community values, e.g., safety, community, convenience, beauty.

Steering Committee Meetings

All steering committee meeting notes and presentation materials can be found on the project website at: <https://www.cityofrochester.gov/wmain/>. Throughout the project, 10 Steering Committee Meetings were held. The date and topic for each Steering Committee meeting is summarized below.

Table 2. Steering Committee Meetings

	Date	General Topic/Discussion
1	November 20, 2020	Introductions, Project Overview, Steering Committee Composition, Public Engagement Plan
2	December 16, 2020	Overview of Previous Plans, Project Goals, First round of public engagement
3	January 22, 2021	REDCO Revitalize Rochester Fund, Existing Conditions
4	February 19, 2021	Survey #1 results, Existing Conditions, Plans for second round of public engagement
5	March 26, 2021	Survey #2, Existing Conditions
6	May 7, 2021	Workshop on Transportation Starter Ideas
7	June 4, 2021	Workshop on Placemaking Starter Ideas, Plans for third round of public engagement
8	July 23, 2021	Workshop on Policy Ideas
9	September 10, 2021	Transportation Concept Deep Dive, Plans for fourth round of public engagement
10	November 5, 2021	Final plan, project wrap up

The steering committee for this project was comprised of the following individuals and organizations:

Abby McHugh-Grifa—Climate Solutions Accelerator

Anne-Marie Brogan – Neighborhood resident

Bill Belec – Trillium Health and the MOCHA Center

Blue Cease – West Main Business Association and Rochester Contemporary Art Center

Bob Williams – Genesee Transportation Council

Brandt Smith – Monroe County Department of Transportation

Chris McDonald – Street Liaison

Dan Hoffman – West Main Street Business Owner

Dan Kenyon – Rochester Genesee Regional Transit Authority

Dawn Noto – Susan B. Anthony Neighborhood Association

Deborah Hughes—National Susan B. Anthony Museum & House

Demetrius Washington-Ellison – West Main Street business owner

Dr. Lomax Campbell – City of Rochester, Office of Community Wealth Building

Erik Frisch – City of Rochester, Department of Environmental Services

Jason Haremza – Genesee Finger Lakes Regional Planning Council

Jay Arzu – Neighborhood resident

Jesse Peers – Reconnect Rochester

John DeMott – Street Liaison, 19th Ward Community Association

John Lightfoot – Changing of the Scenes Neighborhood Association

Julie Boasi – Rochester Genesee Regional Transit Authority

Kevin Kelley – City of Rochester, Office of City Planning

Lora Leon – New York State Department of Transportation

Lin Stango – Rochester Housing Authority

Luticha Doucette – Owner of Catalyst Consulting

Mike Bulger – Common Ground Health

Rick Rynski – City of Rochester, Department of Neighborhood and Business Development

Ronalyn Pollack – Native American Culture Center

Shawn Burr – Rochester Housing Authority

Tatiana Spencer – Youth ambassador

Yolanda Allen – Rochester Genesee Regional Transit Authority

Pop-Up Events and Virtual Public Meeting

Throughout the project, 10 pop-up events on or near West Main were held to raise awareness of the project, collect ideas, and solicit feedback. While each pop-up event was generally oriented around a specific topic or theme that coincided with the project phase, people who attended pop-ups were able to interact one-on-one with City and project staff to discuss a wide range of topics and questions. In addition, a virtual public meeting was held in July to review early concepts and collect feedback.

The date and topic for each pop-up event is summarized below.

Table 3. Project Public Meetings and Events

	Date/Location	General Topic/Discussion
1	February 25, 2021, MOCHA Center	Community Goal Setting
2	March 5, 2021, MOCHA Center	Community Goal Setting
3	March 23, 2021, Carriage Factory	Existing Conditions
4	March 25, 2021, MOCHA Center	Existing Conditions
5	April 8, 2021, MOCHA Center	Existing Conditions
6	July 6, 2021, Virtual Zoom Public Meeting	Starter Ideas
7	July 9, 2021, 845 West Main	Starter Ideas
8	July 10, 2021, Troup Street Park	Starter Ideas
9	July 15, 2021, Kicks and Caps Parking Lot	Starter Ideas
10	July 20, 2021, Carriage Factory	Starter Ideas
11	October 23, 2021, Joy Gallery	Final Concept Deep Dive

Feedback on Existing Conditions

- Heaters and better lights at bus stops
- Fear of violence
- Jobs for people in the neighborhood
- Sidewalks are in terrible shape, especially the brick sections
- Brick sidewalks are horrible for people in wheelchairs
- Main at King – complaints about the crosswalk signal missing. Confirmed with MCDOT that they are awaiting materials and will repair this
- Traffic light and crosswalk are needed at Family Dollar – pedestrians dash across the road here
- The streets are strewn with garbage – clean the streets
- Main and King – red light running is rampant
- Speeding is a huge issue, even the cops speed
- Repair all the roads
- No fast-food places, they attract the wrong elements to the neighborhood
- Too many people hanging out on the street corners – make it uncomfortable for women to walk around the neighborhood
- The Canal St bus stop is safer than the King St bus stop
- Drugs and prostitution are a problem
- Not enough police patrols
- I avoid walking past King St, it feels too unsafe (related to people hanging around making women uncomfortable)
- Like the 1872 Café
- Like the SB Anthony Park
- Like the trail beside the 1872 Café
- SBA Neighborhood is nice
- Gas station is horrible – attracts violent elements
- Boarded up shops need to be dealt with
- Bike trails/cycle lanes are needed along Main Street
- Bus stops in the winter are terrible. They are difficult to use with the snow
- Bigger bus stop signs are needed
- Bus shelters should be on both sides of the road (multiple people talked about using buses in both directions, to downtown and WB to chili Walmart and West Rd Topps)
- Grocery store is needed nearby
- Canal bus stop has fewer people and is easier to use than the King St stop
- More responsive walk signal buttons. They liked the audible signals.
- More likely to use the bus stop with a shelter, if given a choice
- More trees needed
- Main St at Litchfield needs a crosswalk and accessible ramp on the south side
- Sidewalks need to be better cleared of snow
- Businesses aren't handicapped accessible

- Canal St Bus stop needs a shelter
- Bus shelters need to be accessible
- Street needs better lighting
- Raised community garden should be installed at 486 W Main St
- Develop vacant lands. Consider a homeless village.

Feedback on Starter Ideas

- Needs more playable space and activities for kids
 - Basketball
- Acknowledging and referencing current culture and identity of West Main, including the role of refugees and immigrants in the neighborhood (large Somalian community), social justice-oriented history
 - Gateway treatment under 490 like a sign, cool lighting, additional art
- Pedestrian scale amenities like lighting, trees, planters
- Reuse vacant lots
 - Public gardens
- Need maintenance and clean up, trash cans
- Coordination between property owners on placemaking, storefront activation, and other matters, possibly through a community organization
- Engaging and nice places to sit, especially around bus stops
- Programming to animate public spaces, existing and proposed, including small scale events
- Better access to fresh food
- Address housing instability and conditions/root causes of homelessness
- Address perceived/actual crime
- More food options; especially grocery stores, but also restaurants
- Organization empowered to lead change on West Main
- Need traffic calming
- Design should discourage double parking
- Street should be safe and accessible to cross; currently unsafe crossing with the light due to turning traffic, degraded pavement, and buttons, etc.
- Sidewalk pavement quality and materials; materials should be more consistent
- Bus stops should be improved, including adding shelters, bus bump outs, etc.
- Looking for fast food place/affordable restaurants
- Crosswalks need fixing – buttons broken, pavement uneven
- Westbound bus stop at King needs a bench and shelter
- Sidewalks need attention. Need to be fixed and less variable materials
- Biking 2 is preferred over the existing conditions. Liked that it made one sidewalk bike free.
- Want crime cleaned up – afraid to walk the streets.
- More parks/restaurants

- Neighborhood watch? More Police?
- More stuff for kids to do.
- Better bus stops the length of the corridor
- Gardens are a great idea.
- Like bikes on both sides, as bikes are already on sidewalks, may as well give them a space to be.
- Animate the S.B Anthony park – ice cream socials, music, etc.
- More small-scale events
- Flea markets/Craft sales
- More basketball courts
- Bigger sidewalks – smoother sidewalks – remove bricks
- Supportive of placemaking. More events. More things for kids.
- Madison/Reynolds median is good
- Neighborhood motto should be "Freedom Lives Here", we should use it for a gateway
- Madison St. One way from W. Main. Traffic? 490 to king st to W. Main, from east get to w. main to Madison
- More pop-up spaces for small vendors
- 2 lanes help w/getting out of my car. We need public parking lot
- More business recognition for long standing and community agencies
- Listings/Signs
- Signs indicating from west main telling you of historical buildings, home, galleries others businesses that would be of interest to first time shoppers
- Excited for more bike lanes! More trees
- More Ped friendly spaces :)
- Love the narrower/reduced vehicle lanes, love 2 bike lanes with separation Space
- Re: bus stops, several are placed downstream of intersections. Does that impede traffic flow?
- Loss of on-street Parking at 613-625, 601-609, 526-560
- Concerned Trees will have enough root space to be healthy and happy

Feedback on Final Concept Deep Dive

- Less Traffic/Fewer Lanes is great
- More Small Retail, Coffeeshops, Grocers, etc.
- Median at Madison is very good, there are lots of accidents there.
- Create a gateway/visitor center on the east end across from the cafe
- Canal Street is up and coming with new businesses
- There is a strong healthcare history in the area that could be highlighted.

Community Surveys

Throughout the project, four community surveys were distributed to collect public feedback and ideas on the following topics:

1. **Refreshing on Previous Plans and Generating Specific Goals for This Project**
2. **Confirming Community Goals for This Project and Identifying Current Assets**
3. **Ground Truthing Existing Conditions**
4. **Final Concept Feedback**

In general, each survey was open for at least two weeks and was primarily distributed online through the Steering Committee networks, the project distribution list, social media, and other online channels. Feedback received for each survey is provided below. In general, feedback collected through surveys skewed toward a predominately white audience that is not reflective of the communities that live on and around West Main.

Community Survey #1: Refreshing on Previous Plans and Generating Specific Goals for This Project

Response Rate: 117 responses

Demographic Breakdown of Responses:

- Gender: 39% male, 57% female, 1% Non-binary, 1% Genderqueer, 1% Gender Non-conforming, 1% prefer not to say
- Race: 76% white, 17% Black, 3% Hispanic/Latinx, 1% Asian, 3% More than one race

Feedback:

Feedback on Goals for Walking and Pedestrian Environment

- Dedicated Bus Lanes and protected low stress bike lanes.
- It can be intimidating/ frightening to walk W Main
- West Main will be a safe gateway for pedestrians and vehicle traffic.
- Bicycle use and access
- Bike Friendly, lighted, and designed for police patrols
- More businesses to walk to; fewer curb cuts and longer light times for people to cross the street
- Best Practices in Cycle tracks
- West Main St sidewalk width adequate for table seating in front of restaurants & businesses.
- More small business shops with healthier food choices in mind
- More outside seating or tables
- I would like to see W. Main in body more culture, family friendly and friendly police interactions. More of a neighborhood watch and festivals (small).
- Safety, architectural restoration, storefronts, and shops to promote pedestrian traffic
- Sidewalks and designated paths connecting pedestrians/ wheelchair users from bus stops to businesses
- Don't make it better for pedestrians and forget to address the residents of W. Main neighborhoods housing insecurity. Otherwise, this is gentrification. People need to be able to enjoy

this needed attention 10 years from now. Work with the housing movement on this, please.

- Less criminals walking around. More police presence (not social workers)
- Bicycle friendly
- Traffic calming features--it's like a 4-lane highway right now and no place for pedestrians.
- Lots of shops and businesses. Making sure people know this is a safe and fun area to go to
- Green spaces are needed.
- Daily street and sidewalk cleaning, attractive trash bins and exterior building beautification
- No comment on this area
- Winters (except those without snow like today) walking West Main always meets unplowed sidewalks, and worse, piles across the sidewalk left by plowing contractors. Please address these nuisance violations with the priority given other property code violations.
- Bike paths would be a great addition too!
- Make the West Main corridor reflective of an inviting park.
- Repaired streets, curbs, and sidewalks!!
- An emphasis on Four Seasons accessibility and livability
- I have no other input, but I think the current places are a necessity for West Main St
- The areas significant cultural heritage and history will be celebrated with interpretive signage on walkways and trails will

connect to historic sites such as the Anthony museum.

- Good sight lines so that pedestrians feel safe
- Usable (clean, maintained, fully accessible to the disabled) public transportation stops should also be a priority.
- Restaurants, shops.
- All plans should have safety in mind.
- Make filling the commercial spaces on West Main Street a priority, and slow down car traffic.
- I like the goals that have been selected. I think they have elements that will entice people to come explore and enjoy the vibrancy of the area.
- Would like a "Classic Look" as opposed to a modern trendy look.
- Visibility for historic sites, in particular the Susan B. Anthony House and Museum
- Can we have a west side public transportation hub? Pedestrian spaces are great but encourage biking and public transportation.
- There should be a combination of buildings that feature Rochester's history as well as nice shopping places, and cafes/ other places to eat.
- Incorporate cycling
- The goals seem appropriate to make an area comfortable as a home and as an attractive area to visit.
- Walkable and safe... Even at night (*especially* at night, actually!). Thus, needs lighting that is "safe feeling" but not "prison floodlight"-ish.
- Clean up the area... people aren't walking or biking on west main

st. It's unsafe

- More destination places and more focus on history
- The most pressing needs of pedestrians on West Main are: 1) the narrowness of sidewalks, 2) public safety/ street crime, 3) unswept debris and litter, 4) poorly maintained buildings, and 5) the insufficient number of signal lights/crosswalks (zebra crosswalks without signal lights just don't work in our city, especially with the lack of education and enforcement). While pedestrian-focused design is important, we also have overwhelming needs that are much further down on the hierarchy of needs.
- Mix of businesses and residences (both houses and apartments)
- Centralized parking and parking convenient to West Main businesses is also important, to draw in non-residents.
- I would love to see a Visitors' Learning Center to enlighten the community and travelers about the history and achievements of the work of Susan B. Anthony. This center would have virtual learning, hands-on learning, lectures, ample conference space and ample parking space.
- There would need to be neighborhood engagement in these plans so that there is a sense of pride and belonging
- Need wide sidewalks. It would be nice if during warm weather there were places to sit. Places to eat or browse
- This may be implicit to the plan, but handicap and stroller accessibility are also important.
- People need to feel safe while walking anywhere, in any

neighborhood. What are ideas for helping people feel safe?

- Garbage pickup. More public garbage cans to minimize littering. Having garbage emptied more often.
- Pavilions for bus passengers at bus stops
- Litchfield St and W Main St need paving. Also, the sidewalks need repair. I'm in a wheelchair and it's very difficult to get around.
- New stores and shops should be wheelchair accessible.
- W Main should be attractive from city to Genesee St. Walkable, open shops, highlighting diversity, inclusion, Susan B Anthony neighborhood
- New shopping places that accept EBT, UHC, healthy food benefits, secure food shopping, cheap secure clothing shopping
- Stop people from loitering or littering
- Labeled, separate and safe bicycle lanes on west main. Increased connectivity to the city trails
- Bike Access!
- A Susan B Anthony, Frederick Douglass & Underground RR exhibit
- Be sure to include some traffic calming measures (reducing travel lanes, reducing lane widths, adding parking lanes). I am a seasoned pedestrian and I feel a bit uncomfortable on some stretches of West Main Street (because cars are traveling too quickly and too closely)
- Include light rail in street design

Feedback on Goals for Creating Beautiful and Healthy Spaces

- It's important to have community buy in to care for plantings and clear litter
- Trees planted will include 25% fruit and nut bearing trees in the public realm. Vacant land can be used for green connections and access for pedestrians from the surrounding neighborhoods to W Main street.
- Is there an existing neighborhood organization? If not, create one. If so, empower it.
- W Main St should be for residences and businesses, not farms.
- Affordable housing would help build up the community
- I like to idea of a community garden. I would also like to see a co-op for the urban area that is for the people that help decrease poverty. I would like to see a grocery store, other than tops and less of corner stores /fast food places, Family Dollar or Walgreens own by people who do not live in our neighborhood. I would also like to see community resource center that provides educational trainings.
- Again, gentrification. Everyone wants these things. However, many Black residents know that with this and white-led placemaking and development efforts comes a pattern of lack of affordability. And sorry, venture-capitalist funded efforts from B corp developers like Home Leasing are just tokenized amounts of affordability. If these efforts are not part of decommodifying housing, then they will ultimately displace long-time disinvested residents.
- Arts are unimportant outdoors.
- Don't just clean up the land for buildings--clean it for intergenerational nature play
- I support the goals that are listed
- Arts ought to get funding in the greater context and under the measurable goals of transformative placemaking, not for mere prettiness sakes.
- "I love the Kettavong sculptures, the Rutherford murals, and the landscaping that already exists along the railroad tracks, and I would love to see more such things
- Gardening training
- Planting trees now that will grow tall and full
- Flowerpots for businesses. Benches for people to pause
- Community organizations should be given priority for vacant land.
- Farms don't belong on an urban commercial corridor.
- The beauty must be well maintained after being out into place.
- "Two musts: 1. Carefully monitoring the care of the trees is essential. I have noticed this has not been the case after installations, so they fail to thrive, are sometimes abused, and often die. 2. There MUST be a plan for the maintenance of the lots keeping them free of litter etc. Encouraging community members to garden or grow flowers/vegetables would be inspiring!
- The combination of residential, business, and community use with green space is an excellent goal.
- As the largest residential area in the city, housing and neighborhoods needs to be reimaged. As a resident of the

19th ward, there are no small neighborhood parks. Where do kids go to play? There are no thriving neighborhood spaces. These places need to be close. Also, for vacant lots in the city, let's focus on smaller, sustainable houses being built.

- Some of these spaces should be child friendly as well.
- The arts are great, but won't be appreciated, it will be filled with graffiti
- How about a "street of murals" highlighting the nearby history
- There isn't much room for new trees. There is even less room for urban agriculture-- the available parcels along Main would be much better suited for new infill development that provide much-needed jobs and housing. While the quality of the public realm is important, it gets much more attention from our planners than the much more dire economic needs of the area.
- It's important to clarify if development of West Main is to improve the living conditions and uplift the residents, or if it is to increase use of businesses and resources on West Main and draw in non-residents
- All the above are a great vision!
- Hopefully, art will prevent graffiti or have a reusable white board for changing art.
- In addition to the arts, the area could become an incubator for neighborhood businesses that would employ neighborhood residents. The City would have to assist in that economic development effort.
- Community gardening will not only help and support residents of the community and bring people together, but it will also be beneficial to release empty and vacant lots.

- Should have neighborhood watch. I'm afraid to go out at night.
- Must have the sidewalks open for people in wheelchairs
- W Main could use an 'aldi' btwn broad and Genesee
- Unsure - maybe remove all drug activity monitor our community for all violence and drug activity. Add educational, artistic, and shopping stores.
- We have several community gardens in our area, and it is very difficult to get our neighbors involved and then to stay involved. Many folks like them and it's a good idea if 'others' tend them.
- The City should start funding the arts & giving credit to artists when they use their work in city promotional materials.
- I think all these goals are important but adding trees would be the top priority for me. It can get very hot walking down the street on a summer day.
- Make some streets tree lined

Feedback on Goals for Providing Diverse Housing Options

- "Affordable" housing has meant "new" development of section 8 housing that competes with actual affordable housing in nice, older units (\$700 with subsidy and internet beats \$450 for nice one-bedroom in older building).
- Quality of life for residents should be surveyed. Over occupancy in private housing does not lend to a good quality of life for the tenants or the neighbors. Boarding house zoning laws should be reviewed for effectiveness of solving our limited housing for our transient population.
- Identify/survey what the "mix" of housing choices are.

- Multi-generational housing can help families with childcare and elder care
- I would like to see a housing standard put in place that requires property owners to keep up the maintenance of their home, be more mindful of the colors they paint the homes and build a community gratitude program.
- Amenities for multi-modal travelers living in these diverse housing options: bike racks, bus shelters with seating, breaking up the endless sea of parking lots
- Again, Home Leasing is not a leader in this. Please don't be fooled by them. Rochester needs 28,000 units of City Affordable housing. Home Leasing and other venture capital funded corporations like them are providing token amounts. Please, look to the local and statewide housing movement if you want to be accountable in this placemaking work. PUSH Buffalo, City-Wide Tenant Union of Roc, Rochester Housing Justice Alliance, City Roots, Housing Justice for All NYS
- Residential space doesn't make sense if you're trying to make it walking commercial area.
- Access to a grocery store
- Keep building height low--no high-rises!
- Mix housing options are good for a neighborhood.
- Emphasize the QUALITY of the affordable housing
- I support the goals listed above.
- Aging in place remains important, but new housing ought not to come at the opportunity cost of letting existing housing rot, only to be demolished.
- It is important to find ways to improve the quality of life in the neighborhood without pricing it out of reach of the families and individuals who already live and work there
- Attract empty nesters from the suburbs.
- Advertising campaign
- Equity for existing residents. Any property value gains from gentrification to be shared
- Affordable housing is always very important in any area
- Low-income housing should be the primary focus here.
- Connected to safe schools and neighborhood recreation centers.
- Family friendly housing: 3BR, safe play spaces inside and outside
- Restrictions should not be in place which discourage people from working toward higher income.
- Attention to improving existing housing by helping homeowners and monitoring how absentee landlords are taking care of their properties is so important. Building plenty of affordable housing is a must!
- I wouldn't change these goals; they are right on.
- Let's also focus on improving what's there. Can we make 100-year-old houses more sustainable and energy efficient? Many of these houses are at a tipping point of doing small improvements now or facing a rapid decline if left in current condition.
- Providing options for citizens of all ages can help make a viable community.
- I think we have enough affordable housing through the city

- We need to preserve and renovate the existing housing stock in the area. Our region is not growing in population, so new housing developments are primarily just moving the existing "pie" around rather than growing it. New housing projects *can* help to infill gaps in the street, but we don't need to new housing developments to provide affordable housing the way that larger cities with hotter real estate and economies need it. Our greatest housing needs are to provide renovation assistance to existing owners (especially for expensive repairs such as new roofs) and to prospective buyers of buildings that are in need to extensive renovations. The biggest problem that many west side residents have with being able to afford housing is the lack of income, and the most important thing that we can do to improve people's ability to afford housing is to attract more jobs to the area and to provide greatly improved public transportation to jobs in other areas.
- Removing any vacant houses and businesses
- Establishing rapport and enforcing guidelines with existing landlords is crucial
- Certainly needed
- Please don't gentrify.
- Many variations of income on and off West Main. Ensuring a mix of housing choices will benefit many parties.
- Should have a fast-food place on W Main 500 block.
- Affordable housing; family friendly neighborhood
- Retail & grocery store is needed

Feedback on Goals for Cultural Assets

- Buffalo Bill Cody lived on New York Street and is thought to have started his wild west show in a vacant lot there. His son's funeral was at the church that burned down on W Main. Include and present our not so well know history along this route.
- To change goals, you must continue to have community support. Address the disparity needs by reducing stigmas, having providers of color working in the community, culture friendly hospitals, health care services, more emergency housing placements, more clean sweeps, and activities for children and young people. As well for older adults.
- See previous responses. Thanks for this option to 'change goals'. I wouldn't be taking this survey otherwise.
- Historical attraction is a nice touch, but is it financially viable?
- It is already the Susan B. Anthony neighborhood and this needs to expand to the city's advantage.
- Regular monthly festivals supported by City funding happening at the various greenspaces/park areas. To encourage walking and enjoying the businesses and neighborhoods
- I have no additional comments
- Let private foundations and not-for-profits focus on these national treasures. With good leadership they can better draw grants and volunteers than municipalities.
- Rochester has such a rich history! I'd like to hear more about abolitionist and women's rights activist Amy Post as well
- Market neighborhood to Monroe County schools for field trips

- Current residents should be heard
- A visitors' center or museum will welcome visitors to the community and build upon the possibilities for cultural heritage tourism connected to Anthony, Douglass, Steward, etc. and the neighborhood will feel safe and welcoming for visitors with options for food and retail.
- Promoting underserved minorities should be the focus.
- Continue to support the plans for preserving the Susan B. neighborhood!
- Identity of the neighborhood should be expanded to encompass Susan B and suffrage history, but not limited by the inherent challenges of celebrating one person's life & legacy.
- The neighborhood or so large, how does it have an identity? Perhaps it will have multiple identities in the many sub-neighborhoods (e.g., SBA square, plex, Thurston/Brooks, etc.)
- To recognize the heritage of the area is important, but, by itself, cannot make a viable residential community.
- Need to clean up the area. All the beautiful houses that once were, are no longer.
- Our existing building are an asset, and we must work to preserve those buildings. Too many buildings have been allowed to deteriorate, and the city has taken too much of an old-school Urban Renewal approach to the area. We can't demolish our way to a healthier neighborhood. Our historic buildings and buildings of architectural value must be prioritized (not just "the historic significance" but the actual physical history). We don't need to have "a recognizable identity", but we certainly shouldn't have the bland and generic EIFS boxes that dominate most new

developments in Rochester these days.

- The SBA neighborhood has seen great improvement over the past 10-15 years as its historic significance and identity has grown. Highlighting this and other historic connections, including to churches and other buildings, helps revitalize an area
- "The neighborhood AND the NSBAMH and other historic significance
- Would be enhanced"
- Yes! Make this a destination.
- Right now, the Susan B. Anthony area is the only draw for people outside the area, and it's an excellent one. This could be expanded to include a similar Frederick Douglass museum and visitor center.
- Our history is exciting and very important! We should highlight our foremothers & forefathers with pride.
- Small business opportunities
- Cement historical context to area making it unique

Feedback on Goals for Creating More Transportation Options

- West Main needs to be a destination rather than a thoroughfare.
- The first question would not let me choose very important. But I think it's the most important issue. Safety includes addressing the known long time drug trading occurring on commercial properties. The city point system does not work. A different approach is needed to have the businesses be a solution to the problem that occurs on their properties and places of businesses. A review of police calls for service over a year

along this area would clearly show the areas that impact a safe walkable street.

- "Protected bike lanes. PLEASE don't waste road space by putting a bike lane between a travel lane and parking. I will not use that to bike with my kids as it is too dangerous.
- A bus only lane, and/or timing signals for buses, would be great as well."
- Needs to be Safe to travel by bicycles
- Community education, activities, and action when addressing slum property owners, people who damage community property, community police presence.
- The bus system in Rochester has not, is not, and doubtfully will ever be an effective or heavily used mode of transport - other alternatives need to be examined
- People getting more transit options need to be able to afford the W. Main neighborhoods they've lived in for many disinvested years, 10 years from now.
- It pretty much already is all 3 of these things. I mean, to cross the road you hit the crosswalk button and wait 15 seconds.
- Bicycle friendly
- Bicycle infrastructure, amenities, and facilities will make cycling a viable, safe, and enjoyable mode of transportation in the neighborhood
- Cleanliness and Safety at corners, crosswalks, bus stops
- No comments, I feel your e moving in the right direction
- I-490 and the CSX mainline impede traffic and business

investment, as developers and national chains remain unable to find sufficient customers and revenue within catchments blocked by I-490 and rail tracks.

- Buses in Rochester need to run more often!
- Develop a West Main website.
- More upkeep of public transportation stops is needed in this area, particularly in the winter months.
- West Main Street is a broad street. It should be possible to have bus lanes to make traveling by bus quick and easy, as well as physically separated bike lanes, to make bicycling safe even for children.
- Keep expanding the availability of all the above!
- Public transportation is key, perhaps electric trolleys or certainly electric buses. Would expect easy bike and walking.
- Improve the pedestrian connection to downtown and counter the barrier posed by the overpass
- I don't know.
- We must realize that it will not be nearly as easy to reduce the number of lanes on Main Street as it is on other streets. There are no nearby parallel arterial streets except for Brown Street, which empties into West Main at Bulls Head. It may be possible to take out one lane along major stretches, and the freed space would help to widen the narrow sidewalks and provide better stops for transit. However, a one lane reduction would not be enough to create bike lanes *and* sidewalk and bus stop improvements. Bike lanes cannot be prioritized over the needs of pedestrians and transit users. West Main serves a number of bus routes, and the needs of transit service absolutely must

be at the top of the list of priorities. The needs of pedestrians must be placed over the desire for parking spaces. The last Main Street project added recessed parking areas on the south side of the street that forced sharp jogs in the sidewalk in three locations. Those jogs and the narrowness of the sidewalk make the sidewalks impassable for most sidewalk plows, which makes the pedestrian environment much worse in the winter. We must add more shelters for bus stops in the area, and we can't have the usual excuse from the city that it is RTS's responsibility to build shelters. Shelters would be a small part of the cost of this project-- if we can afford to talk about adding public art, then we absolutely must have transit shelters as part of the project.

- Geographically West Main is a key artery into and out of the city, so it is both a thru-way and a destination. Both goals are important.
- Transportation is key to connecting W Main to surrounding communities
- Should be connected to downtown so that visitors will find it easy to get to the area
- Buses aren't the only answer. Trolleys are also an option.
- There is nothing on W Main St like Dollar General
- Human rights
- Better biking lanes!
- Retail, restaurants, grocery store
- I would specifically mention bicycles in the goal about "any type of travel" to make it clear that bike infrastructure is important.
- Include light rail rather than buses

Feedback on Goals for Economic Growth

- Public parking for visitors and the tour buses are needed. Many small businesses were just relocated off W Main with the Bullshead demolitions through eminent domain. A plan to bring commercial back into this area is needed. Healthier business is needed. How can we ensure the business community will uplift the community and will take care of their properties? Example - picking up litter daily, shove snowy sidewalks.
- I would re-word the goals to reflect a goal and not a promise. For example, #1 - "Create opportunities for small businesses that will result in an increase in jobs"
- Supporting bus use means limiting the available parking; otherwise, why would people use the bus?
- I would work on cleaning up the community rebuilding, holding property owners accountable, make the streets safer and more walkable, get rid of the corner stores, hair/wig stores, and expensive clothing stores. Open a co-op in a central location, I would build a community resource center that provides free trainings where our youth and adults can learn cooking skills, a trade like carpentry to obtain gainful employment- the nation has too many grants that can assist to make these programs possible. Develop a community that says family, neighborhood friendly, pride, and thriving with a rich culture.
- Accessibility for people with differing physical abilities
- If vacant, toxic land is just be minimally cleaned up to erase the past and put market rate developments on top, then this is not equity; it's colonial mindset. Past and present injustice needs to be preserved, not just with a plaque; it needs to remind people what happened there, the disinvestment. Spatial Justice.

Healing. White people moving into and working into these new "revitalized" neighborhoods need to feel what happened to them in the past and do their own internal work around that. (See PLEX brownfield)

- Main St already has frequent bus service.
- Offer funds to help RTS restore Route #28 (after Reimagine) or a service better connecting West Main to College Town.
- Yes, yes, yes to more small businesses and better bus service!
- Long term, low interest loans for businesses.
- Commercial interests should not be the main priority here.
- Safe, affordable parking
- No parking minimums.
- The goals are great! Hope there will be money and commitment to seeing them achieved!
- Again, bus, bike, walking and perhaps electric trolley. The vacant land redevelopment is a good idea if it keeps a reasonable amount of open/green space.
- A new visitor center for the Susan B. Anthony House will support economic growth and future development
- These questions are very idealistic, but what does it mean? What do these concepts look like? The east side of the city is main draw for the city. I constantly find myself crossing the river to seek out opportunities. Aside from a few bodegas, an overpriced TOPS, and a Walgreens, what amenities does the west side offer? I would love to go to a nice dinner within walking distance of my home. I would love to have a museum close by. There is little, if anything, to keep you in the neighborhood. So much

needs to be addressed and reimagined.

- Vacant land developed as garden or park sites seems more appropriate than redevelopment for business purposes.
- With COVID present, small business will not thrive. This plan should be shelved for at least another year. More important topics should be addressed
- The area has lost a tremendous number of jobs in recent decades, and this section must include goals for attracting more jobs back to the area. Small business are part of it, but the loss of a number of industrial companies and the decline of employment at St. Mary's are orders of magnitude higher than what can be replaced by only focusing on small businesses. The fourth question recognized that development impacts transportation; however, there is very little recognition by city planning staff and the transportation has an impact on land use. We have enough population and jobs in the area today to support high-frequency bus service (and a modern streetcar). However, we are not likely to bring back a significant number of jobs without improved transit to reduce the dependency on parking. What the heck does, "Existing features of the neighborhood will be celebrated and used to support economic growth" mean in real-world practicality? We need less planning jargon and more emphasis on what is important to the area.
- Current businesses and organizations should be involved and supported first, to ensure their thriving in the new vision. Introduction of new businesses should be assessed for their need with residents and usefulness enticing others to the area
- Vacant land needs to be hospitable while waiting for defined use.

- Key question is how to serve the current residential and business populations while also attracting the visitor population from nearby hotels. Safety for all should be a key theme.
- There are many historical buildings in the area which could draw a lot of attention to W Main.
- W Main St needs many more quality places to eat at and restaurants. The 1872 Cafe is a good example of what we need more of.
- Healthier food options, groceries, restaurants.
- Create adequate housing and jobs for homeless and low-income families. Use all vacant buildings instead of leaving them empty.
- Most of our community rides the bus so that is important.

Feedback on Goals for Building Community Capacity and Ownership

- Young people aren't the only people to attract. What about retirees, empty nesters, and urban professionals?
- Same thing with the wording. Would #1 be better stated: "Empower community organizations and residents to be able to play a vital role in development and implementation of the vision for West Main"? Just a thought.
- Remember 95% of the community doesn't have the time, interest, or awareness to get involved in planning activities, so "community involvement" is just loudmouth involvement.
- I would work with existing community to rebuild and redevelop a strong community then network out to the surrounding communities we can only focus on one area at a time.
- Play a role? They need to be organized into movements. These

are always political. Bring in transformative justice facilitators too. Pay them. This is not something for Community Design Centers to just hold forums about. Community organizing and movement building needs to happen. Again, look to pre-existing progressive movements locally. Past 540WMain Gentrification Conferences are a good place to find the organizations part of this collective work.

- Our young people, residents, and community organizations are just the worst.... Highest murder total in 13 years, and everyone focuses on Daniel Prude instead.
- I think you are moving in the right direction.
- Perhaps better than faceting by age, instead facilitate interests such food entrepreneurship and investment, especially following the pandemic and orange-zone shutdowns. Draw upon existing reputation for decent food along Chili Ave to make Bulls Head and West Main a destination.
- Develop/re-develop a neighborhood association
- Communities should be in charge of planning and development.
- Sometimes community outreach can get hijacked by a few NIMBYs. Many people do not have time to participate in long meetings, which is why surveys like this are great. Also, we need to consider the interests of future residents as well.
- Great goals!
- Are there any young people living on the west side? How do we organize them?
- The goals need to look years into the future. That perspective is sometimes difficult to maintain. Community groups sometimes seem to concentrate on the moment rather than the long term.

- Don't fall into the trap of "oh, the YOUNG people, the YOUNG people!" Old people are valid people too - and they usually have more money and more life experience (read: sense...). Sorry, but I do get a bit tired of this tendency to worship young people... (says the old person! LOL).
- Good luck reaching these goals
- Community organization and residents must be much more involved in the future of our neighborhoods, as evidenced by the fact that very few of the people on the steering committee are from the west side of the city, and most of the ones who don't have very little involvement in the area. We need to have more control over the future of our own neighborhoods rather than have outsiders directing us. We can't have our needs take a back seat to the whims of some east siders who are primarily focused on building bike lanes. There are many under-represented groups that need to be involved (Blacks, older residents, poor and under-employed, bus riders, and west-siders), so it is rather odd that "young people" (who are already represented to a much greater degree than many other groups) are the only group that is mentioned.
- Wouldn't it have been great if young people were active participants in this process?
- No matter who's involved, that group needs to start thinking in "we" rather than "me." What will be best for the entire community?
- Neighborhood festival; block party; know your neighbors
- All officials that have an impact on how our environment, living, job potential, etc. should want all of humanity to stay out of poverty.

Community Survey #2: Confirming Community Goals for This Project and Identifying Current Assets

Response Rate: 43 responses

Demographic Breakdown of Responses:

- Gender: 50% male, 40% female, 10% prefer not to say
- Race: 81% white, 12% Black, 8% other

Feedback:

Community Suggestions for Vision Statement

- Try to make it shorter and more succinct
- Directly confront personal security concerns that exist on West Main (people who feel uneasy about panhandling, crime, etc.) as part of (1)
- Incorporate preservation and renovation of historic buildings as part of (3)

Community Suggestions for Access and Connectivity Goals

- Be more direct and specific about the strategies
- Incorporate transit service quality in addition to transit access at bus stops
- Incorporate maintenance considerations into goals and solutions (ex. Flower boxes require maintenance, snow clearance impeded all-year access)
- Demonstrate a commitment to preserving access to West Main for people (and potential customers) who pass through but do not live in the area

- Incorporate accommodations for storefront or sidewalk commerce
- Incorporate street buffers to separate fast moving traffic and people on the sidewalk
- Define “high quality experience” for (1) and consider ways to incorporate greenery and play areas around bus stops
- Incorporate slowing down cars as a goal
- Incorporate smart city features

Community Suggestions for Supporting and Fostering Sustainable Communities Goals

- Incorporate incentivizing new employers to locate to the area – existing small businesses are critical but only part of the solution.
- Identify potential of vacant land to serve in business0supportive capacities, like parking.
- Make it clear that for businesses to thrive on West Main, more than just local community patronage is important
- Focus on generating the type of businesses that are needed in the community – grocery, bakeries, banks, florists, gift shops, etc.
- Add parking goals
- Add a focus on community pride, ownership, and neighborhood morale – these will help ensure investments are protected and that deterioration doesn’t follow

Community Suggestions for Existing History, Culture, and Legacy Goals

- Directly confront history of residents and community organizations being ignored
- Incorporate maintenance and renovation of existing historic businesses
- Focus energy on (1) – it is the most important
- Look forward, not backward – there is plenty that already exists for history, make sure to lift up contemporaries
- Incorporate the need to accommodate visitors to the area as part of promotion – have to have people to promote to

Important People and Places on West Main

- Susan B. Anthony
- Susan B. Anthony Museum
- History of Bulls Head
- Frederick Douglass
- 1872 Café
- Bus Stops
- Somali African Restaurant
- Floral Boutique
- Family Dollar
- Nick Tahou

- Andy's Southern Deli
- Sew Green
- Brue Coffee (not on West Main) – great because it was a place where both neighborhood residents and U of R students intersected
- 540 W Main
- Saints Peters and Paul
- Business owned by Black and brown community members
- Fish market
- Convenience stores
- Plaza at the intersection of Genesee and West Main
- Walgreens
- Regular people – the ones who live here
- Rochester Housing Authority
- MOCHA
- Art supply store

Community Survey #3: Ground Truthing Existing Conditions

Response Rate: 40 responses

Demographic Breakdown of Responses:

- Gender: 48% male, 44% female, 7% prefer not to say
- Race: 64% white, 25% Black, 3% Asian, 3% Latinx, 3% mixed race, 3% other

Feedback:

Survey takers were shown a series of maps/images and takeaways based on existing condition data and asked to reflect on whether the findings felt accurate based on their experience of West Main, and if they had anything else to say about the topic. Overall, 93% of survey respondents agreed with the findings. Comments and clarifications are provided below by topic area.

How people get to work

- Some people were surprised by the level of transit reliance around in the study area – one person noted that they perceive that bus stops are not often full. Another person noted that they thought the share of transit commuters would be higher based on the level of car ownership.

How many people have cars

- People noted that even around the relatively small study area, car ownership rates are not equal, with several people noting that the 19th Ward is a high-income area with high rates of car ownership.
- Other people noted that even though many people don't own a

vehicle, people in the area are reliant on cars due to inadequate transit service and job decentralization.

How it feels to walk around West Main

- People reiterated that crossing West Main is very uncomfortable because of the speed of cars on the street.
- People also requested crosswalks are a variety of locations including:
 - Family Dollar
 - Between Henion and Jefferson
 - All intersections are legal crossings and should be marked
 - Mid-block locations
 - Wentworth/Willowbank or Edgewood Park
 - Trowbridge
 - Madison Street
- A person noted that the existing crosswalk at King Street is not working well.
- A person requested better pedestrian crossing support at the Walgreens.
- People noted that marked crosswalks are insufficient due to the width of West Main.
- A person noted that some of the existing push buttons are in awkward locations for the crossing.
- One person noted that in this environment, buildings at the sidewalk edge feel less comfortable because the sidewalk gets too narrow and visibility is impeded.

- A person noted that more (1-2 more) signalized crossings are needed on West Main.
- People dislike walking along the locations where the parking bays cut into the crosswalk, creating an awkward and challenging jog for people.

How many people take the bus

- People reiterated that the street, not just the stops, are critical to good transit service on West Main. The cuts to transit service as part of the ReImagine RTS rollout (Route 28 and parts of Route 25) were also lamented.
- People also shared information about whether they have specific bus stops that they prefer and why:
 - People noted that the Jefferson Ave stop is convenient and has a shelter, though the shelter could be better maintained.
 - A person noted that the stop at 1872 café is nice.
 - People shared that the westbound stop at King Street has a lot going on and is nice to wait at.
 - At Henion Street, people noted that some of the activity and the condition of the bus stop make it unpleasant to wait at. Activity at the nearby gas station also makes people uneasy.
 - A person noted that stops with wider sidewalks feel safer.
 - People noted that they want shelters and amenities at all bus stops on West Main, or at the very least a bench at each.

How many cars move through West Main

- Multiple people noted that the average speeds feel much higher than those indicated in the findings, with people noting that they suggest speeds are closer to 40 mph or higher.

Where crashes happen

- People noted that there are more near-misses and unreported crashes that happen.
- People were asked to reflect on how and where traffic speeds affect their feeling of safety and comfort on West Main. Responses include:
 - Most people feel that excessive speeds contribute to uncomfortable and unsafe conditions. Multiple people noted that on a bike, the street feels very unsafe. One person noted that when they bike on West Main they ride squarely in the middle of the right travel lane to establish space for themselves and encourage drivers to go around.
- Multiple people noted that the intersection of Genesee and West Main stands out as feeling unsafe and uncomfortable.
- A person noted that when they drive the speed limit on the street, they get immediately passed and people swerve around them. They felt that the area between Genesee and Ford is the worst section for this behavior.
- People see others running red lights. One person noted that they are afraid to cross the street on foot because of red light running.
- Some people fear for their safety when waiting to take the bus because they are nervous standing so close to the street near fast-moving traffic.
- People stated that the speeding issues on West Main make it uncomfortable for all transportation modes to use the street, and that even when driving they avoid West Main because it is uncomfortably fast.
- People noted that user behavior by people using all kinds of transportation contributes to unsafe conditions on West Main. Distraction and disregard for rules of the road were noted by several people.
- People noted that the number of lanes and width of lanes contribute to speeding.
- People noted that it's hard to make turns onto and from West Main because of speeds.
- People noted that the number of turns at the two ends of the study area – at Chili Ave and at Ford Street – make it very difficult to cross the street.
- People note that the traffic speeds make it more uncomfortable to walk along stretches of the street that don't have parking, because the parking provides a buffer from the speed and noise. Others suggested that wider sidewalks would also help with this problem.

Buildings and uses along West Main

- People shared information about their favorite businesses and other types of businesses they would like to see on West Main including:
 - More variety of businesses that will bring in customers from a larger geographical area than just the immediate neighborhood
 - A grocery store with fresh foods and affordable prices
 - Bike shops - people noted that there are no bike shops anywhere in all of Southwest Rochester
 - More eating establishments on the street

- More taller buildings, like the existing 4-story buildings between Canal and Litchfield
- More active uses on low-activity sites (phone stores and gas stations were mentioned)
- More and more varied retail shops along the street
- Green spaces, cultural centers, and playgrounds
- A small hardware shop

Vacant Land on West Main

- People shared ideas for what uses they would like to see on West Main's existing vacant lots, including:
 - Mixed uses were the most requested use for vacant land
 - Expanded St. Mary's campus
 - Row houses and housing
 - Open space and parks/playgrounds
 - Flea markets and farmers markets
 - Food truck court
 - Pop-up events
 - Taller buildings (3-5 stories)
 - Daycares
 - Community Gardens
 - Off-street parking
 - More cultural institutions and centers to uplift the Susan B. Anthony House and Museum

- Bike parking
- Murals

Parking on West Main

- People noted that even in places where this is on-street parking, people double park. This sometimes impedes bus rider drop off/pick up
- A person noted that the one place they feel there is a shortage of parking is on the south side of the street west of Jefferson. Much of the other on-street parking is not well used.

Art and culture on West Main

- Specific sites that people identified for new art installations on West Main include:
 - Bull's Head parking lot
 - West Main at Reynolds
 - West Main at Genesee
 - Nick Tahou
- Specific types of art that people suggested for West main include:
 - Utility boxes, as the previous round was well-supported
 - More murals
 - Pavement art, as long as it is done safely
 - More of the same kind of installations, but extended further to the west to get better coverage of the street
 - New buildings with strong historical and architectural

elements

- Public art for the public, not just out in public
- Given its location, a 'Welcome to the City' installation

Open space on West Main

- People reinforced that cleanup of contaminated sites needs to be prioritized and funded on the West side of the City.
- The lack of shade tree cover on West Main was noted as interrelated to the nature of West Main as a major street connecting Rochester to the West side of the City.

Community Survey #4: Final Concept Feedback

Response Rate: 70 responses, 360 unique comments

Demographic Breakdown of Responses:

- Gender: 48% male, 43% female, 8% prefer not to say
- Race: 81% white, 14% Black, 5% other

Feedback:

General Feedback on the Design

- People shared that they are very excited about having dedicated space for bikes, wider sidewalks, fully-appointed bus stops, and new trees. Ongoing maintenance of these new features were top of mind for many people.
- People shared that they are glad to see a design that will dramatically slow down people driving on West Main.
- People shared some concern about traffic congestion and

whether two lanes is adequate to accommodate traffic, especially when someone needs to turn left and no left-turn lane is provided. Some people noted that there are not many major streets that offer a parallel option to West Main in this area.

- Some people shared are concerned about unsignalized crosswalks. Some requested additional protected at every crosswalk, such as flashing beacons.
- People expressed concern over the amount of on-street parking provided and whether enough is provided to entice more people to come to the area. Some people suggested that supplementing with additional off-street parking could be helpful. Still, other people suggested that parking is rarely full on West Main and that more should be eliminated to widen sidewalks further.
- People expressed excitement at many elements in the plan, while acknowledging that education will be needed to help the community acclimate and learn to use these design elements.
- Instead of separated bike lanes, some people suggested that simply providing larger sidewalks that could be shared by multiple modes may be easier to use and maintain.
- People expressed a need for bike lanes to be well-integrated where they transition to other streets. People are also curious about how people turning left on bikes are intended to navigate through intersections.
- People suggested raising crosswalks at side streets.
- Some people expressed concern about buses stopping in lane and causing traffic delays.
- People requested that public trash cans and recycling bins be included as project amenities to prevent litter and debris.

- People noted concern for local businesses during a construction project of this scale.
- People reemphasized the need to policy changes that will address personal security and crime, prevent displacement, and incorporate strong maintenance policies in order for these ideas to be successfully implemented..

Feedback on Bull's Head Area

- People are appreciative of the public art ideas
- Access to the Bull's Head parking lots was noted as a potential concern
- People are curious about how this location will relate to the current intersections at Kensington, Silver, Brown and Essex Streets.

Feedback on Henion/Edgewood Area

- People are excited about enhanced landscaping and placemaking within this area.
- People noted that bus stop amenities at this location – and a crosswalk to serve them at Edgewood – is much needed.
- A request was made to coordinate with Coptic Christian community owners of church and residential properties at 730 & 720 West Main to address existing vehicle-damaged brick borders.

Feedback on Willowbank/Wentworth Area

- A suggestion was made to partner with the Seneca Park Zoo to create a pollinator garden to add to our city's growing Butterfly Beltway.

- With several off-street parking lots in this area, some people suggested removing on-street parking on the south side of the street in this area to widen sidewalks. Other people requested additional off-street parking lots to supplement a limited on-street supply.
- Some people question whether the bus stop relocation in this area will be best for residents.

Feedback on Jefferson to Reynolds

- People noted that left-turn queue spaces are helpful for people biking at this location
- Some people requested more on-street parking.
- People requested a HOPR station.
- Continued RV and buss access to Madison Street for tours and visitors to the Susan B. Anthony House and Museum was noted as a priority.
- A person suggested making Reynolds a dead end street and incorporating a large public space at this location to highlight local attractions.

Feedback on Madison to Litchfield

- People are excited about the possibility of outdoor business space, parklets, and neighborhood events in this area. Some people also expressed some concern about how safe parklet would be in the street.
- People were encouraged by the idea of using City-owned parcels to catalyze partnerships between the community and the City.
- People expressed gratitude at the bump outs on Madison Street to slow traffic in this area.

- A person suggested that Litchfield at Main needs to be wider.
- Some people suggested that parking on the south side of the street is rarely used and that the space there would be better utilized as a wider sidewalks, as pedestrian use activity in this area is high.
- People were supportive of time-restricted parking in this area.

Feedback on Canal Street Area

- People appreciated that all on-street parking in this location was preserved to serve the many businesses and residents that live in this stretch. Other people suggested that parking on the south side of the street is rarely used and that the space there would be better utilized as a wider sidewalks, as pedestrian use activity in this area is high.
- People shared gratitude for the new two way connection to connect to the Troup Street path.
- A suggestion was made to highlight the canal history at the bus stops in this area.
- People shared that walking and biking access to 1872 is much improved in this design.

Feedback on Trowbridge and Van Auker Area

- People shared excitement about Van Auker becoming reintegrated with the street grid, and noted that today it can be circuitous to connect to West Main from Corn Hill because of this missing connection. However, people suggested that more engagement with direct neighbors will be needed to determine if this is a truly good idea for them.
- People are hopeful about reuse of existing underutilized lots in this area.

- People hope to see additional high-quality affordable housing in this area.
- People are supportive of the many new trees in this area.

Feedback on Broad Street and 490 Area

- While many people thought the idea of lighting the underside of 490 is a great and playful idea, others thought it was a bit silly and may be difficult for some people to navigate through, especially older drivers.
- People want to make sure that existing art under the overpass are preserved and incorporated into future plans.
- People were supportive of the realignment of Broad Street to meet West Main at a 90-degree angle.
- Some people expressed concern about there not being enough vehicle lanes at this juncture.
- People shared some skepticism that the underpass could host active uses.
- Some people wondered about the future of the 490 overpass given what is happening on the Inner Loop North project and previously on Inner Loop East.
- People requested bike and pedestrian head starts with signalization to ensure people don't conflict with turning vehicles through the intersection.

What about this Concept most excites you?

- So many things! Improved bike infrastructure, placemaking opportunities, more greenery to name a few.
- The use of dedicated bike lanes.
- Greenery & pedestrian/bike access

- The fantastic bike, pedestrian, and bus infrastructure!
- Better less congestive traffic. Easier access and a much better intersection at brown st.
- Everything!!!!!!
- More attractive and green. Encourages safe biking. Connects downtown with Bulls Head
- Giving beauty to the neighborhood. I love this area but as a non-local the city needs these "small" changes that unify the community and also be a really welcoming environment. I don't enjoy walking on Main Ave because of the traffic, but maybe this will make it a little bit easier.
- It just seems to bring the area alive. More greenery, bike accessible lanes, pedestrian friendly, more pleasing to the eye, brings a fresh new energy to the area. Wish these concept could be expanded to other parts of the city
- Bringing Van Auker to Main
- Safety
- Our SUSAN B. Anthony and Frederick Douglass NEIGHBORHOOD is of High Importance Thank You.
- Possibility of getting rid of bump outs at King and Main!
- Bike lanes, trees, traffic calming.
- Fully connected bike lane that is grade separated from the street.
- I like how it protects the bicyclists by the vegetation and its beautification, as well.
- Making the area nicer and bringing business to the city
- Dedicated space for bus stops.
- Trees and wider sidewalks make it look/feel more attractive and inviting.
- It looks wonderful! I love everything about the design. I live in the area. I'm an avid bike rider.
- The fact that this is happening in general
- It is well thought out and promotes walking and biking.
- Protected bike lanes and increased vegetation
- Consideration of multi-modal traffic, bus lanes that exist, protected bike traffic, safer intersections, improvements to bike boulevards, more commitment to streetscape
- Nice to see the visualization of concepts.
- More biking destinations and more pedestrian-centered redesign
- Most consideration put on people and not vehicles per se
- Protected bike lanes! Safer facilities will make for safer streets.
- That it seems thoughtful and takes into consideration people, bikes, green space and businesses. I really hope it happens!
- Revitalizing this whole area. It has been dumpy looking for years.
- I'm really impressed by the full-on protected bike lanes, and would love to see them in the final design
- Expanded role of pedestrian and cyclist safety.
- Dedicated Bike Lane and really nice bus stops.
- Buffered bike lanes and floating bus stops!
- The dedicated bike lanes

- Revitalizing
- Making the 490 overpass a smaller footprint & adding green space & bike lanes
- The separated bike lanes will facilitate my commute & the potential for dense re-development with affordable housing & active pedestrian commercial activity.
- The bike track along Main St. to keep bicycle traffic separate from motor vehicles and pedestrians.
- I love the separated bike lanes and the wide sidewalks as well as the consideration for potential new business
- Separated bike lanes without risk of car door impacts. Making car alternatives safer will make our city more appealing in so many ways. Visually, air quality-wise, health, stress levels, noise, etc.
- Looks like it'll feel inviting to be getting around without a car.
- Bike lanes, bus lanes, slower traffic and more neighborhood Street
- Making Rochester a truly bike-friendly city and making cycling safe and accessible to all!
- Planning street design with pedestrian and cyclists in mind. Making people, not vehicles the focus of street design.
- I've said a few times that it's great that there is such a focus on alternative transportation and creating more livable green spaces. I think that this neighborhood will be much more inviting.
- Adding greenery and making W Main more friendly for bikes, bus-riders, and pedestrians
- My bike ride to the Walgreen's should be pleasant.
- It's actually good
- I like the art idea at the corner of west main and Genesee street. And the lighting under the 490 bridge.
- This is MY neighborhood you're taking about! Excited to see progressive projects like this. I remain concerned about maintenance. One of the most important things we can do is keep it clean, and without a littering campaign, it will get dingy really fast. More trash cans. More fruit bearing trees. More speed control devices. I am concerned that a lot of the single lane designs will contribute to dangerous passing behaviors.
- The fixes to make Main Street safer for people & cars
- Landscaping
- Reducing access to potentially viable businesses!
- Revitalization
- It will be safe to bike down W Main St; I can walk down W Main St on a rainy day without getting soaked by cars driving through puddles
- The mixture of quality bike lanes and bus stop amenities.

What about this Concept most concerns you?

- Concern that street space won't truly be allocated to outdoor placemaking opportunities. I think it's a great idea, I am just concerned about follow through. People are so protective of parking spaces, when we truly have ample parking in the city, and not enough vibrant streetscapes.
- How will the consolidation of bus stops affect the average time

it takes a person to access public transit? (The impact could be quite low for all I know).

- Maintenance cost/green space health/pedestrian safety
- I love the designs; I just worry they will get changed before actually being built. With bike lanes / trees / floating bus stops being stripped out of the plan to make room for...parking.
- Bus stop in front of church and upkeep of greenery
- Limited parking makes it difficult to use the businesses on this stretch. It's a lot of greenery to maintain - what resources are allocated from the city to manage this?
- The homeless population. I hate to say it but it is a big concern for this area in this particular community. Will this negatively impact their community or the general public? Is there a way to provide more safety measures within this design/concept?
- How much will this affect taxes, the general public
- The south side of Jefferson & Main looks too narrow for these goals.
- Automobile traffic and driver attitude
- Homelessness and drinking alcohol in our park during Spring and Summer.
- NOT getting rid of the bump outs at King and Main.
- Floating bus stops may be more difficult to find when people are used to them being at the intersection. Very important that highly visible shelters be built as part of this project if implemented.
- I think in the first slide it meant the buildings would be moved or

made smaller for more sidewalk space. Is that feasible? And the boxes for restaurant tables, it seems a little unsafe for the diners if there should be a car crash.

- Getting business owners and patrons to bite on the proposal
- Pedestrian crosswalks moved away from the corners, sidewalk still too narrow in spots, roadway too narrow for the needs for the people who live and work there (here).
- The focus on bike lanes when there are so few bikers!
- Not sure about some of the bus changes, but I like the bike lanes.
- I don't have any issues with this proposal. It will really revitalize the neighborhood
- It might not happen
- How do morning commutes in a sunny AM accommodate a rainy trip home?
- Still so much consideration for on-street parking and car traffic, seems like a lot of space for a bus to get caught in traffic
- Need to work closely with the Bull's Head Revitalization Project's not-yet finalized plans for commercial and residential redevelopment. Need to monitor and plan for the future use of Nick Tahoe's, Sanctuary Village homeless shelter and linkage with the Cascade District.
- Delays and local business affects during construction
- The inability to follow through or only following through halfway
- The changes that need to be accepted by community members and the community at large driving through.

- That it is a major gateway into the City of Rochester that could stimulate storefront businesses. Would require ease of traffic which this plan seems to restrict. If storefront businesses could develop would seem you would want people coming into and out of the city be able to stop at a business, park and go on to work/home.
- Upkeep. I don't want the area to lose its attraction and the upkeep a cut in the city budget when money is scarce.
- I'm concerned it won't come to fruition; that the bus lanes, bike-friendly, and pedestrian-friendly elements will be sacrificed for more car parking/drive lanes
- We still seem to be stuck in that outdated mindset that businesses need on-street parking to survive.
- Where all the parking currently on main street will be diverted
- Parking and crime
- The left turn box, will drivers understand what they are
- Bike infrastructure is very disconnected right now, having a safe way (No more Sharrows!) to travel Up/Down Genesee to get to/from these paths, and a safe way to connect to the Genesee river trail on both sides of the river, north & south will be important for these new bike paths to successfully connect this space to other bike infrastructure.
- I'm sure that there will be the usual backlash from businesses as some community members that they need more parking but our streets are meant to be public for people and not always for cars.
- I hope it actually happens as outlined.
- Planners/elected officials caving to pressure from people who can't imagine the area without as many cars.
- There's a high potential for gentrification with this plan. This will make this area much more attractive and I do worry that it will attract more high-income households to the exclusion of existing residents.
- The possibility that all the improvements might significantly slow vehicular traffic
- What the bike lane buffer means. Is it just extra space or is there a curb.
- Nothing except the city not following through
- The bike lane. I think taking valuable pedestrian space is short sighted and only serves a very small minority.
- Reduced traffic flow and parking isolating this area from visitors.
- Not a big fan of the bicycle left turn box that results in cyclists waiting through two red lights; it only takes a couple bicyclists to fill them up and block the bike lane
- No dedicated center turn lane causing traffic to back up significantly while waiting for a vehicle to turn left.

What questions about this Concept do you have?

- How well does the new bike & pedestrian infrastructure fit into other long term infrastructure plans?
- How much will be done as part of the initial project and how much will be completed later? Is there budget for everything? If we have to make cuts, what are the priorities? I love the art stuff, but might suggest cutting that if need be because it's easier to add later as opposed to protected bike lanes or floating bus stops.

- How will individual business owners be compensated or assisted during the construction period?
- What will the construction be like? Working off Main Ave will this effect tourism? Will this disrupt the daily flow of drivers?
- How long would this take.
- How many hours and dollars have been spent on this issue?
- Off street parking & safety
- Why were most of the members of the advisory group from the east side?
- What happens next, and when?
- How will it encourage and promote truly affordable (\$18K -\$30K) new housing in the Bull's Head BOA?
- There is going to have to be a lot of work on reducing violence in the area before people from outside of the area are willing to utilize businesses, walk or bike in the area.
- Security? Police patrol?
- What is the target for housing units to be added in this re-development? What is the target rent/mo for those units? Are essential services (grocery, daycare, entertainment) being considered in ways to make it possible to live in that housing without cars?
- Can we do this on more streets? Will clearing snow and debris from bike lanes take a priority reflecting the fact that this is the main or sole transportation for many people going to and from work, myself-included?
- What is the project time-line?
- Can you add cyclist left turn information to all segments.
- Does the city have a plan for maintenance?
- When does the project break ground?
- How long will it take to complete the entire project?
- What will the expense be to maintain a multi-block long park?
- Can we make all of our streets look like this?

APPENDIX C: PRELIMINARY TRAFFIC ANALYSIS

Building on previous work completed as part of the Bull's Head Revitalization Project, a high-level traffic analysis was completed to help support a conversation around the future of West Main Street. This analysis was used to help inform the final concept design presented in this plan, however due to design iterations throughout the planning process, the analysis herein does not fully match the proposed concept.

Understanding the desire of the City, GTC, and the community to explore additional potential uses on West Main, this analysis primarily focuses on assessing the potential impacts of implementing a four-to-three lane conversion on West Main Street. Throughout the design iteration process, the final concept design presented in this plan was further modified to include left-turn lanes only at locations with significant safety or operational benefits.

The final concept presented in this plan is intentional about prioritizing the needs of the neighborhood over the needs of regional travelers. Though West Main today functions as a pass-through street for many people, feedback from the Steering Committee and public consistently demonstrated a desire for more elements – like wider sidewalks, bike lanes, and better bus stops – that are simply not possible while accommodating multiple lanes for vehicle traffic.

Summary of Build (Baseline) Conditions

The study area of this assessment is West Main Street between Chili Avenue/West Avenue and West Broad Street/Ford Street. Seven signalized intersections within the study area were analyzed:

- West Main Street at Chili Avenue/West Avenue
- West Main Street at Genesee Street/Brown Street
- West Main Street at Henion Street/Walgreens Driveway
- West Main Street at Jefferson Street
- West Main Street at King Street
- West Main Street at Canal Street
- West Main Street at West Broad Street/Ford Street

For the intersections between King Street and Ford Street/West Broad Street, a baseline model provided to Toole Design by the City of Rochester was used. Although it does not reflect existing conditions on the ground today, the Future Build Condition (2024) model from the Bull's Head Revitalization Project was used as the Baseline model for the intersections from Chili Avenue to Jefferson Street at the request of the City. In this model, the cross section of West Main Street varies greatly throughout the corridor. Intersection geometry and lane configurations for existing and Future Build (Baseline) conditions are shown in Table 1 below to demonstrate how the study intersections are proposed to change due to the Revitalization Project, as well as Alternatives proposed for this analysis.

Within the study area, all pedestrian signals are set to concurrent phasing in both existing conditions and the Future Build model, meaning people walking received a WALK signal at the same time as the through traffic in the same direction. Drivers turning left or right must yield to pedestrians crossing the street. There are currently no bicycle facilities within the study area.

Traffic Volumes

To estimate the traffic volumes for the Future Build scenario, the Bull's Head Revitalization Project team collected turning movement counts (TMCs) in 2019 and applied a background growth rate of 0.5% per year for 5 years. Vehicle trips generated from the revitalization project itself were then estimated and distributed amongst the network in addition to the background growth using conventional methods for trip generation and distribution. The consultant team noted the Future Build (Baseline) model is very conservative in its approach and represents a worst-case scenario for traffic. The Traffic Study for the Bulls' Head Revitalization Plan notes that due to the nature of the development likely to occur in the redevelopment area (affordable and senior housing units, mixed-use, etc.), the project's location in a dense urban environment, and the City's goals to promote multi-modal transportation and transportation demand management, the actual number of vehicle trips generated is likely much lower than estimated.

Chili Avenue/West Avenue

In the Future Build (Baseline) model, the Chili Avenue/West Avenue intersection with West Main Street is a three-legged intersection. West Avenue eastbound consists of a single shared through/right-turn lane. West Main Street westbound consists of a through lane and a left-turn lane. Chili Avenue northbound consists of a left-turn lane and a right-turn lane. It should be noted that in the Future Build model, the York Street approach to this intersection is closed, rerouting traffic to Brown Street for access to West Main Street. The intersection is also proposed to be realigned for better sight distance than the existing configuration.

Genesee Street/Brown Street

The West Main Street intersection with Genesee Street and Brown Street is a four-legged intersection. In the Future Build Condition model, both West Main Street eastbound and westbound consist of a left-turn lane, a through lane, and a shared through/right-turn lane. Genesee Street northbound consists of a left-turn lane and a shared through/right-turn lane. The Brown Street southbound approach consists of a left-turn lane, through lane, and a right-turn lane. As part of the traffic impact study for the Revitalization Project, this intersection is proposed to be realigned.

Henion Street/Walgreens

The intersection of West Main Street with Henion Street and the Walgreens Driveway is a four-legged intersection, with Henion Street being a one-way street heading away from the intersection. In the Future Build Conditions model, both West Main Street eastbound and westbound approaches consist of a left-turn lane and a shared through/right-turn lane. The Walgreens driveway southbound approach consists of one general-purpose lane.

Jefferson Avenue

The West Main Street intersection with Jefferson Avenue is a four-legged intersection. In the Future Build Conditions model, West Main Street in both the eastbound and westbound direction consist of a left-turn lane, through lane, and shared through/right-turn lane. Jefferson Avenue northbound consists of one general purpose lane, while Jefferson Avenue southbound consists of a left-turn lane and a shared through/right-turn lane.

King Street

The King Street intersection with West Main Street is a three-legged intersection, with King Street comprised of one general purpose lane on the northern leg of the intersection. The West Main Street approaches both have two vehicle travel lanes, with the westbound approach consisting of a through lane and a shared through/right-turn lane, while the eastbound approach consists of a shared left-turn/through lane and a through lane.

Canal Street

The Canal Street/Voters Block Driveway intersection is a four-legged intersection with Canal Street as the northern leg and the Voters Block Driveway as the southern leg. The Canal Street approach has one general purpose lane while the Voters Block Driveway is modeled with a shared though/right-turn lane and a left turn lane. Both West Main Street approaches currently consist of a shared left-turn/though lane and a shared through/right-turn lane.

West Broad Street/Ford Street

The West Broad Street/Ford Street intersection is a four-legged intersection on the eastern end of the study area, offering access to I-490. West Broad Street southbound consists of a left-turn lane, shared left-turn/through lane, and a through/right-turn lane. West Main Street westbound consists of a left-turn lane, two through lanes, and a right-turn lane. Both Ford Street and West Main Street eastbound consist of a left-turn lane, a through lane, and a shared through/right-turn lane.

Table 4. Intersection geometry and approach lane configuration for study intersections

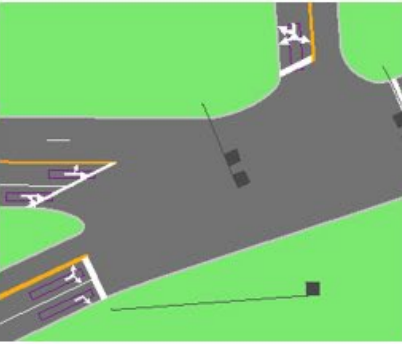
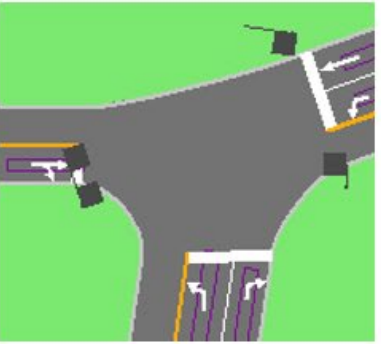
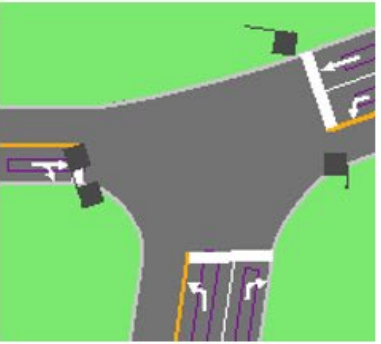
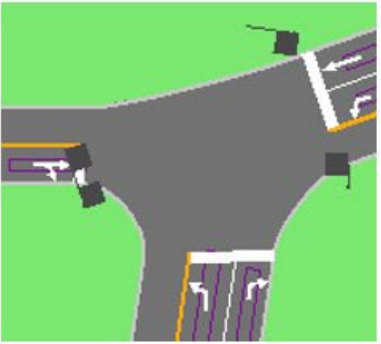
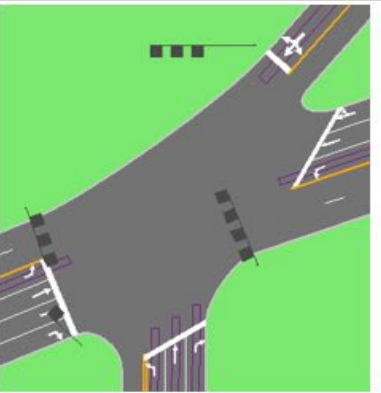
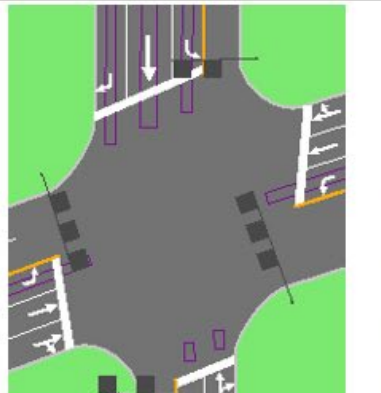
Intersection	Existing (2019) Layout	Future Build (Baseline)	Alternative 1	Alternative 2
Chili Ave/West Ave				
Genesee St/Brown St				
Henion St/Walgreens				

Table 5. Intersection geometry and approach lane configuration for study intersections

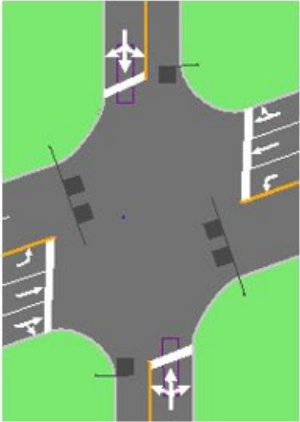
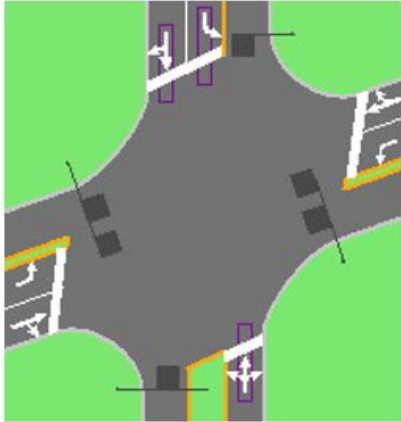
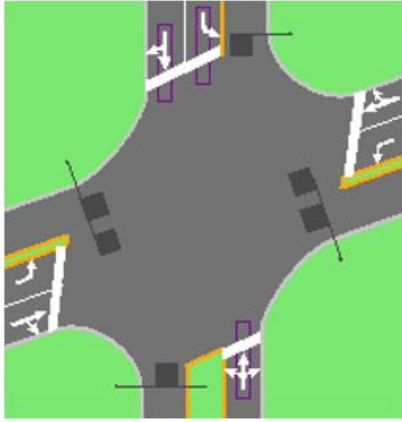
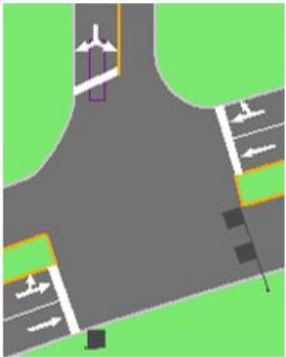
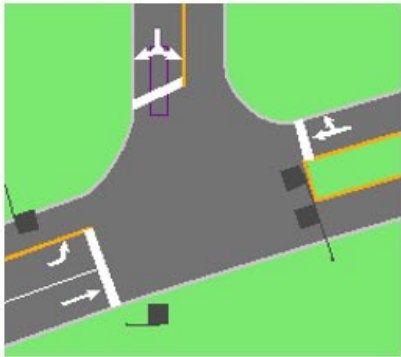
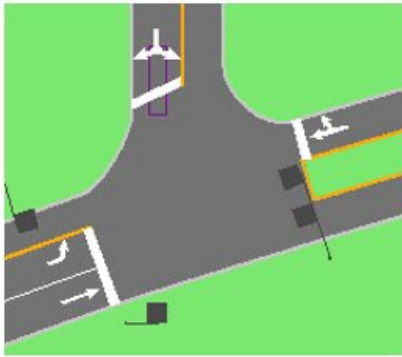
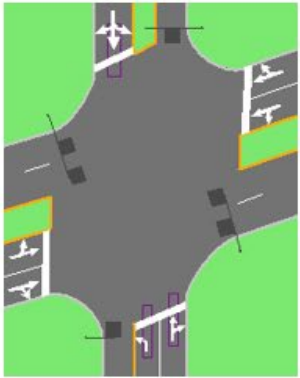
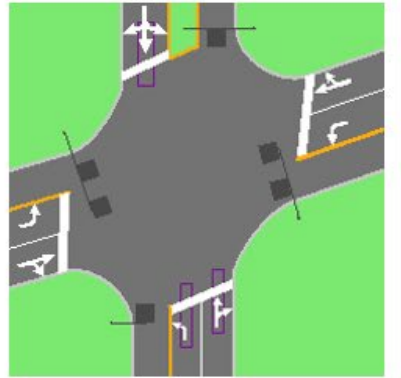
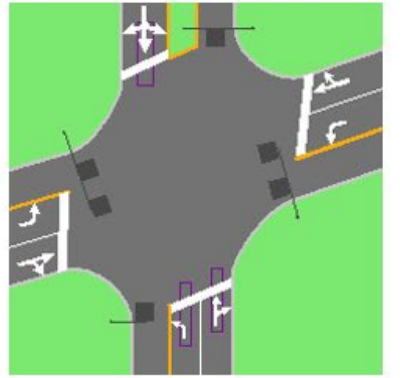
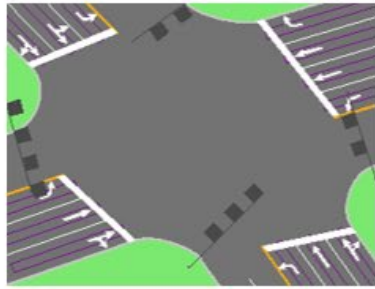
Intersection	Existing (2019) Layout	Future Build (Baseline)	Alternative 1	Alternative 2
Jefferson St				
King St		N/A		
Canal St		N/A		

Table 6. Intersection geometry and approach lane configuration for study intersections

Intersection	Existing (2019) Layout	Future Build (Baseline)	Alternative 1	Alternative 2
W Broad St/Ford St		N/A		

Summary of Future Conditions

Assumptions

Volumes, signal timings, and Synchro models obtained by Toole Design from the City were not comprehensively reviewed for accuracy against in-field observations or the Traffic Study Report prepared for the Bull's Head Revitalization Plan.

Planning During and After COVID-19

As individual travel behaviors have changed in response to the global COVID-19 pandemic, it is likely that the traffic patterns described above using 2019 data no longer reflect the volumes of vehicles traveling through the study area. There is also reason to believe that some travel pattern changes will persist in the

long-term, especially among commuters who appreciate greater workplace flexibility. Additional TMCs at key intersections were obtained in April 2021 to better understand current and potential long-term travel pattern impacts of COVID-19. These TMCs show a decrease in traffic volumes between 5% and 46% during the AM and PM peak hour, depending on the intersection.

Data from other cities has shown that even as traffic has rebounded to or near to pre-pandemic levels, volumes are more dispersed and less concentrated around traditional commuting peaks.¹ While nothing is certain, it is likely that the once-typical peak hours around commute times will be flatter than pre-pandemic conditions, and in some places may not be dramatically different from off-peak hours.

¹ StreetLight, Inc. COVID TRANSPORTATION TRENDS: What You Need to Know About the "New Normal". <https://learn.streetlightdata.com/hubfs/eBooks%20and%20Research/COVID%20Transportation%20Trends/COVID%20Transportation%20Trends.pdf>

Table 7. Change in vehicle volumes during COVID

	System Synchro Volume (vph)	April 2021 Volume (vph)	% Change
Morning Peak Period			
Genesee/Brown	1836	1410	-23%
Jefferson	1426	947	-34%
Broad/Ford	2615	1422	-46%
Evening Peak Period			
Genesee/Brown	2621	2497	-5%
Jefferson	2158	1828	-15%
Broad/Ford	3699	2249	-39%

Operational Analysis and Alternatives Tested

This high-level traffic analysis evaluated potential vehicle traffic impacts under a four-to-three lane conversion scenario for West Main Street. Through this analysis, two alternatives were tested:

Alternative 1 consists of a left-turn lane and a shared through/right-turn lane for all signalized intersection approaches on West Main Street. No adjustments to approaches to West Main from intersecting streets were made. All cycle lengths were maintained at 100 seconds per cycle, as were all intersection offsets. While most intersections did not need 100 seconds, the busier intersections within the study area (Genesee Street/Brown Street and West Broad Street/Ford Street) performed best for vehicle operations when 100 cycles were maintained. Phasing splits were adjusted to better accommodate the proposed lane assignments.

Alternative 2 largely maintains the same cross-section as Alternative 1, except for the Genesee Street/Brown Street

intersection and Ford Street/West Broad Street intersection. A dedicated right-turn lane was added to the eastbound West Main Street approaches in Alternative 2. For this alternative, protected only left-turn phasing was incorporated for all intersections except the Henion Street/Walgreens driveway intersection, which had minimal left-turning vehicles.

Traffic models for each alternative were developed using two models provided to Toole Design by the City of Rochester. For each alternative, vehicle operations during the morning and evening peaks were evaluated.

Vehicular Level of Service (LOS) is a qualitative measure of traffic congestion based on the average delay for a motorist. LOS A is used to describe minimum traffic delay and is an indication that there is underutilized roadway capacity during the peak hour, and therefore all other hours of the day. LOS F represents high levels of traffic delay during the peak traffic hour. The table below, excerpted from the Highway Capacity Manual, provides LOS criteria for signalized intersections.

One weakness of using vehicular level of service as a primary measure of traffic operations is that the use of a letter grade scale implies that “A” is the best condition. LOS A or B means that there is excess vehicle capacity, which can have negative consequences including speeding, safety risks for vulnerable users, and adverse environmental impacts. There are no national standards for LOS, and cities or states have discretion to adopt LOS targets that reflect their unique constraints and their tolerance for traffic congestion. In addition, traditional traffic analyses – such as this one – promote planning around the busiest traffic hours of the day, even though most hours of the day will operate far better for vehicles. As a result, vehicle-centric decisions are often made at the direct expense of the safety, comfort, and accessibility of other users.

To compute the LOS and other performance measures at signalized intersections, the HCM 2000 methodology was used. Synchro 10 software was used to apply these methodologies, which allows for manipulation of characteristics such as lane configuration, traffic volumes, pedestrian/bicycle to vehicle interactions, and peak hour factors. In addition to estimating delay and LOS, 50th and 95th

percentile queues lengths can also be estimated. Synchro outputs, with results presented by intersection and by movement, are attached.

Overall traffic operations for the intersections for the Build (Baseline), Alternative 1, and Alternative 2 scenarios are shown in Table 2 below. The proposed changes in Alternatives 1 and 2 have minimal effect on most of the intersections. The traffic model showed the largest potential impact to vehicle operations during the PM Peak period for Alternative 1 at two intersections:

- At the Genesee/Brown intersection the overall intersection LOS increases from C to E under Alternative 1. Under Alternative 2, which adds an eastbound dedicated right-turn lane and uses protected only left-turn phasing, the overall intersection LOS at this location improved slightly to LOS D, which is generally considered acceptable in urban environments.
- At the Ford Street/West Broad Street intersection the overall intersection LOS increased from C to F under Alternative 1. Under Alternative 2, which adds an eastbound dedicated right-turn lane and uses protected only left-turn phasing, the overall intersection LOS at this location improved slightly to LOS E. Because this intersection is a hub for regional traffic, the TMCs collected in April 2021 during the COVID-19 pandemic show a dramatic reduction (46% in the AM and 39% in the PM) in traffic at this location. While these lower volumes were not modeled in this analysis, the long-term impacts of the pandemic on regional traffic should be considered in any future redesign of the street.

Table 8. Motor Vehicle Level of Service Criteria

Level of Service	Average Stopped Delay at Signalized Intersections (Seconds/Vehicle)
A	0.0-10.0
B	10.1-20.0
C	20.1-35.0
D	35.1-55.0
E	55.1-80.0
F	>80

Table 9. Intersection Traffic Capacity Analysis

	Build (Baseline) Conditions			Alternative 1 Conditions			Alternative 2 Conditions		
	V/C a	Delay b	LOS c	V/C	Delay	LOS	V/C	Delay	LOS
Weekday Morning									
West Main at Chili/ West	0.74	22	C	0.69	21	C	0.76	25	C
West Main at Genesee/Brown	0.71	26	C	1.05	53	D	0.87	40	D
West Main at Henion	0.46	4	A	0.46	3	A	0.51	10	A
West Main at Jefferson	0.35	6	A	0.54	14	B	0.58	17	B
West Main at King	0.34	2	A	0.59	5	A	0.57	10	A
West Main at Canal	0.31	5	A	0.54	6	A	0.59	8	A
West Main at Broad/ Ford	0.63	22	C	0.98	39	D	0.77	32	C
Weekday Evening									
West Main at Chili/ West	0.65	13	B	0.65	13	B	0.69	15	B
West Main at Genesee/Brown	0.82	34	C	1.08	70	E	1.03	55	D
West Main at Henion	0.56	6	A	0.56	5	A	0.63	18	B
West Main at Jefferson	0.53	20	B	0.79	25	C	0.89	34	C
West Main at King	0.37	4	A	0.68	11	B	0.67	12	B
West Main at Canal	0.37	7	A	0.61	11	B	0.66	16	B
West Main at Broad/ Ford	0.84	24	C	1.40	83	F	1.11	62	E

Note: Using SYNCHRO 10 software.

a Volume-to-capacity ratio.

b Average total delay in seconds per vehicle.

c Level of service.

Recommendations and Considerations for Concept Development

Based on the high-level analysis described above, Toole Design supports moving forward with the development and continued analysis of concepts for West Main that include a thoughtful reduction in vehicle lanes. Additional recommendations and considerations for concept development include:

- West Main Street changes dramatically in character and context across the study area. Concepts should consider potential impacts to traffic and transit operations when determining whether all of West Main or specific segments are best suited to lane reallocations.
 - While they may have safety benefits depending on the signal phasing, left-turn lanes are not operationally necessary for the intersections of West Main Street with Henion Street, Jefferson Avenue, King Street, or Canal Street. Depending on the ultimate design for the corridor, the space currently allocated to left-turn lanes in this analysis may be better utilized as bicycle facilities, wider sidewalks, or transit amenities.
 - The intersections with Genesee Street/Brown Street and West Broad Street/Ford Street will likely require a more nuanced approach to signal timing and phasing than was provided in this high-level analysis during the design phase.
- Depending on the crosswalk length in the final design, which dictates the pedestrian clearance time needed, half cycles may be used for the intersections of West Main Street with Henion Street, Jefferson Avenue, King Street, or Canal Street. These changes could decrease delay for all roadway users.
- West Main Street will become a high-frequency transit route in May 2021 with 10 buses per direction scheduled to travel through the study area each hour between 6AM and 6PM. Maintaining integrity and reliability of bus service is critically important. Close coordination with RTS will be essential throughout the concept development process. If corridor-long bus lanes are not feasible or desired due to roadway width or community input, queue jumps at key intersections should be considered to allow buses to bypass queued vehicles.
- As noted previously, all pedestrian phases in the Baseline model are concurrent. When creating concepts, the turning movements of vehicles across these paths should be analyzed to ensure a safe and comfortable environment for people crossing the street. For crosswalks with a high number (over 250 per hour) of conflicting vehicle turning movements, additional safety precautions should be considered, including use of leading pedestrian intervals or, if indicated, exclusive pedestrian phasing. Exclusive pedestrian phasing may result in additional delay for all users.
- According to the model provided to Toole Design by the City, the West Main Street intersection with West Broad Street/Ford Street currently utilizes a protected/permissive left-turn phasing scheme for the West Broad Street approach, which has two lanes of left-turning traffic. While allowed, protected-only phasing is much more common for its multiple safety benefits. Together with the crash data, the need for the permissive phase should be evaluated prior to any redesign.

Lanes, Volumes, Timings

1: Jefferson & Main

Bull's Head Urban Renewal TIS

AM 2024 Full Build with Development and Mitigation

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35
Future Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	75	0	0	100	0	0	50	0	0	100	0	0
Storage Lanes	1	0	0	1	0	0	0	0	0	1	0	0
Taper Length (ft)	25	Yes		25	Yes		25	Yes		25	Yes	
Right Turn on Red												
Link Speed (mph)	30											
Link Distance (ft)	325											
Travel Time (s)	7.4											
Confl. Peds. (#/hr)	11	3	3	3	11	2	2	1	1	1	2	2
Peak Hour Factor	0.97	0.97	0.97	0.84	0.84	0.84	0.80	0.80	0.80	0.83	0.83	0.83
Heavy Vehicles (%)	9%	5%	29%	3%	8%	14%	11%	14%	5%	7%	7%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	649	0	37	456	0	0	182	0	34	143	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	0
Protected Phases												
Permitted Phases	1	1	1	1	1	1	2	2	2	2	2	2
Detector Phase	1	1	1	1	1	1	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Total Split (s)	35.0	35.0	35.0	35.0	35.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None	None
v/c Ratio	0.05	0.29	0.08	0.08	0.21	0.53	0.53	0.53	0.16	0.37	0.37	0.37
Control Delay	0.9	1.5	3.9	3.9	3.6	19.2	19.2	19.2	17.3	15.2	15.2	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.9	1.5	3.9	3.9	3.6	19.2	19.2	19.2	17.3	15.2	15.2	15.2
Queue Length 50th (ft)	0	7	3	3	22	35	35	35	8	25	25	25
Queue Length 95th (ft)	m1	3	10	34	34	70	70	70	24	56	56	56
Internal Link Dist (ft)	1877											
Turn Bay Length (ft)	75	100										
Base Capacity (vph)	566	2266	487	2217	2217	362	362	362	223	409	409	409
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.29	0.08	0.08	0.21	0.50	0.50	0.50	0.15	0.35	0.35	0.35
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 50												
Offset: 22 (44%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 55												
Control Type: Actuated-Coordinated												
m Volume for 95th percentile queue is metered by upstream signal.												

Splits and Phases: 1: Jefferson & Main



HCM Signalized Intersection Capacity Analysis
1: Jefferson & Main

Bull's Head Urban Renewal TIS
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35
Future Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	10	10
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	0.99	1.00	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	0.99	1.00	0.96	0.96	1.00	0.96	1.00	0.96
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.99	0.99	0.99	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1538	3162	1634	3092	3092	1515	1515	1515	1574	1582	1582	1582
Flt Permitted	0.49	1.00	0.40	1.00	1.00	0.90	0.90	0.90	0.56	1.00	1.00	0.56
Satd. Flow (perm)	792	3162	681	3092	3092	1380	1380	1380	930	1582	1582	1582
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.80	0.80	0.80	0.83	0.83	0.83
Adj. Flow (vph)	26	625	24	37	439	17	36	90	56	34	101	42
RTOR Reduction (vph)	0	5	0	0	5	0	0	34	0	0	31	0
Lane Group Flow (vph)	26	644	0	37	451	0	0	148	0	34	112	0
Confl. Peds. (#/hr)	11	3	3	3	11	11	2	1	1	1	1	2
Heavy Vehicles (%)	9%	5%	29%	3%	8%	14%	11%	14%	5%	7%	7%	6%
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA
Protected Phases	1	1	1	1	1	1	2	2	2	2	2	2
Permitted Phases	1	1	1	1	1	1	2	2	2	2	2	2
Actuated Green, G (s)	30.9	30.9	30.9	30.9	30.9	30.9	6.6	6.6	6.6	6.6	6.6	6.6
Effective Green, g (s)	33.9	33.9	33.9	33.9	33.9	33.9	10.1	10.1	10.1	10.1	10.1	10.1
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68	0.68	0.20	0.20	0.20	0.20	0.20	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	536	2143	461	2096	2096	187	278	278	187	319	319	319
v/s Ratio Prot	c0.20	c0.20	c0.20	c0.15	c0.15	c0.15	c0.11	c0.11	c0.11	c0.07	c0.07	c0.07
v/s Ratio Perm	0.03	0.05	0.30	0.08	0.22	0.53	0.53	0.53	0.18	0.35	0.35	0.35
Uniform Delay, d1	2.7	3.3	2.7	2.7	3.0	17.8	17.8	17.8	16.5	17.1	17.1	17.1
Progression Factor	0.22	0.36	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.3	0.3	0.2	1.0	1.0	1.0	0.2	0.2	0.2	0.2
Delay (s)	0.7	1.5	3.1	3.1	3.3	18.8	18.8	18.8	16.7	17.4	17.4	17.4
Level of Service	A	A	A	A	A	A	B	B	B	B	B	B
Approach Delay (s)	1.5	3.3	3.3	3.3	3.3	18.8	18.8	18.8	17.2	17.2	17.2	17.2
Approach LOS	A	A	A	A	A	A	B	B	B	B	B	B
Intersection Summary												
HCM 2000 Control Delay	6.0			HCM 2000 Level of Service			A					
HCM 2000 Volume to Capacity ratio	0.35											
Actuated Cycle Length (s)	50.0			Sum of lost time (s)			6.0					
Intersection Capacity Utilization	47.4%			ICU Level of Service			A					
Analysis Period (min)	15											
Critical Lane Group												

Lanes, Volumes, Timings

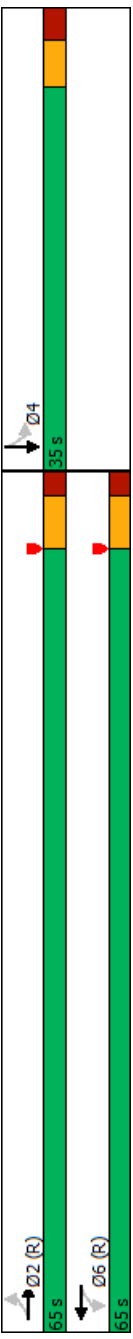
2: Henion/Rite Aid & Main

Bull's Head Urban Renewal TIS

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Future Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	50		0	0		0	0		0
Storage Lanes	1	0	0	1	0	0	0		0	0		0
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes
Right Turn on Red		30			30			30			30	
Link Speed (mph)	177				1167			322			169	
Travel Time (s)	4.0				26.5			7.3			3.8	
Confl. Peds. (#/hr)	5		6	6	0.92	5	10		6	6		10
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90	0.75	0.75	0.75
Heavy Vehicles (%)	0%	6%	0%	0%	10%	0%	2%	2%	2%	0%	0%	17%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	699	0	21	433	0	0	0	0	0	26	0
Turn Type	Perm	NA	0	Perm	NA					Perm	NA	
Protected Phases		2			6						4	
Permitted Phases	2	2		6	6					4	4	
Detector Phase	2	2		6	6					4	4	
Switch Phase												
Minimum Initial (s)	25.0	25.0		25.0	25.0					6.0	6.0	
Minimum Split (s)	31.0	31.0		31.0	31.0					33.0	33.0	
Total Split (s)	65.0	65.0		65.0	65.0					35.0	35.0	
Total Split (%)	65.0%	65.0%		65.0%	65.0%					35.0%	35.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0					3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0					2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0					6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max					None	None	
v/c Ratio	0.01	0.46		0.04	0.30					0.15	0.15	
Control Delay	2.0	4.0		3.4	3.7					30.7	30.7	
Queue Delay	0.0	0.1		0.0	0.0					0.0	0.0	
Total Delay	2.0	4.1		3.4	3.7					30.7	30.7	
Queue Length 50th (ft)	0	40		2	43					11	25	
Queue Length 95th (ft)	m1	185		m9	179					89	89	
Internal Link Dist (ft)		97			1087			242				
Turn Bay Length (ft)	50			50								
Base Capacity (vph)	821	1523		595	1442					487	487	
Starvation Cap Reductn	0	138		0	0					0	0	
Spillback Cap Reductn	0	0		0	0					0	0	
Storage Cap Reductn	0	0		0	0					0	0	
Reduced v/c Ratio	0.01	0.50		0.04	0.30					0.05	0.05	
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow											
Natural Cycle:	65											
Control Type:	Actuated-Coordinated											
m	Volume for 95th percentile queue is metered by upstream signal.											

Splits and Phases: 2: Henion/Rite Aid & Main



HCM Signalized Intersection Capacity Analysis 2: Henion/Rite Aid & Main

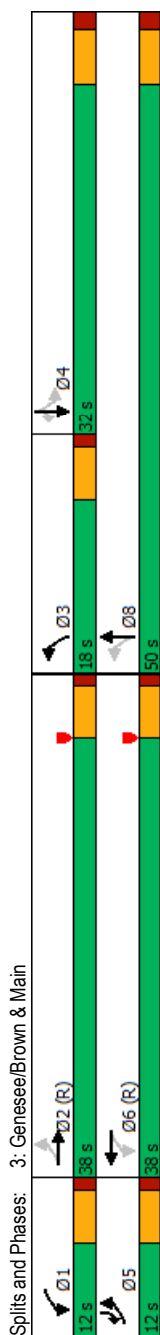
Bull's Head Urban Renewal TIS
AM 2024 Full Build with Development and Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 7	 638	 26	 19	 391	 7	0	0	0	8	 4	6
Traffic Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Future Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0					6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00					1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00					0.99	
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00					0.99	
Frt	1.00	0.99	1.00	1.00	1.00	1.00					0.96	
Flt Protected	0.95	1.00		0.95	1.00						0.98	
Satd. Flow (prot)	1789	1784		1798	1690						1664	
Flt Permitted	0.51	1.00		0.37	1.00						0.98	
Satd. Flow (perm)	960	1784		696	1690						1664	
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90	0.75	0.75	0.75
Adj. Flow (vph)	7	672	27	21	425	8	0	0	0	11	7	8
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	7	698	0	21	433	0	0	0	0	0	19	0
Confl. Peds. (#/hr)	5	6	6	6	6	5	10	2%	2%	6	6	10
Heavy Vehicles (%)	0%	6%	0%	0%	10%	0%	2%	2%	2%	0%	0%	17%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA					Perm	NA	
Protected Phases	2			6						4		
Permitted Phases	2			6						4		
Actuated Green, G (s)	80.6	80.6	80.6	80.6	80.6					7.4		
Effective Green, g (s)	80.6	80.6	80.6	80.6	80.6					7.4		
Actuated g/C Ratio	0.81	0.81	0.81	0.81	0.81					0.07		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0					6.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0					3.0		
Lane Grp Cap (vph)	773	1437		560	1362					123		
v/s Ratio Prot		c0.39			0.26							
v/s Ratio Perm	0.01			0.03							0.01	
v/c Ratio	0.01	0.49		0.04	0.32						0.15	
Uniform Delay, d1	1.9	3.1		1.9	2.5						43.4	
Progression Factor	0.47	0.72		0.81	0.87						1.00	
Incremental Delay, d2	0.0	0.9		0.1	0.6						0.6	
Delay (s)	0.9	3.2		1.7	2.8						43.9	
Level of Service	A	A		A	A						D	
Approach Delay (s)		3.1			2.7			0.0			43.9	
Approach LOS		A			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			3.9			HCM 2000 Level of Service						
HCM 2000 Volume to Capacity ratio			0.46			A						
Actuated Cycle Length (s)			100.0			Sum of lost time (s)						
Intersection Capacity Utilization			56.4%			ICU Level of Service						
Analysis Period (min)			15			B						
c Critical Lane Group												

Lanes, Volumes, Timings
3: Genesee/Brown & Main

Bull's Head Urban Renewal TIS
AM 2024 Full Build with Development and Mitigation

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	146	500	209	156	191	39	131	187	125	62	243
Future Volume (vph)	146	500	209	156	191	39	131	187	125	62	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	150	225	200	200	200	200	0	0	0	100	200
Storage Lanes	1	1	1	1	1	1	1	0	0	1	1
Taper Length (ft)	25	25	No	25	25	No	25	25	No	25	No
Right Turn on Red											
Link Speed (mph)	30	30		30	30		30	30		30	
Link Distance (ft)	378	378		313	313		355	355		307	
Travel Time (s)	8.6	8.6		7.1	7.1		8.1	8.1		7.0	
Confl. Peds. (#/hr)	2	2	8	8	8	2	2	2	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92
Heavy Vehicles (%)	12%	3%	7%	9%	10%	0%	11%	8%	13%	0%	6%
Shared Lane Traffic (%)											13%
Lane Group Flow (vph)	172	834	0	164	242	0	149	355	0	67	264
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	NA	pm+ov
Protected Phases	5	2	1	6	6	3	8	8	4	4	5
Permitted Phases	2	2	6	6	6	8	8	8	4	4	4
Detector Phase	5	2	1	6	6	3	8	8	4	4	5
Switch Phase											
Minimum Initial (s)	6.0	10.0	6.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	11.0	29.0	11.0	29.0	29.0	11.0	28.5	28.5	28.5	28.5	11.0
Total Split (s)	12.0	38.0	12.0	38.0	38.0	18.0	50.0	50.0	32.0	32.0	12.0
Total Split (%)	12.0%	38.0%	12.0%	38.0%	38.0%	18.0%	50.0%	50.0%	32.0%	32.0%	12.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	C-Max	None	C-Max	None	None	None	None	None
v/c Ratio	0.33	0.68	0.55	0.20	0.57	0.69	0.39	0.75	0.33	0.33	0.33
Control Delay	12.8	24.7	23.5	20.0	31.0	34.9	41.2	51.7	26.0	26.0	26.0
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	25.7	23.5	20.0	31.0	34.9	41.2	51.7	26.0	26.0	26.0
Queue Length 50th (ft)	48	170	49	47	67	190	38	161	68	68	68
Queue Length 95th (ft)	m86	289	#83	80	100	251	75	230	111	111	111
Internal Link Dist (ft)		298		233		275		227		227	
Turn Bay Length (ft)	150		200				100		200		200
Base Capacity (vph)	524	1221	300	1233	281	670	257	522	441	441	441
Starvation Cap Reductn	0	165	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.79	0.55	0.20	0.53	0.53	0.26	0.51	0.33	0.33	0.33



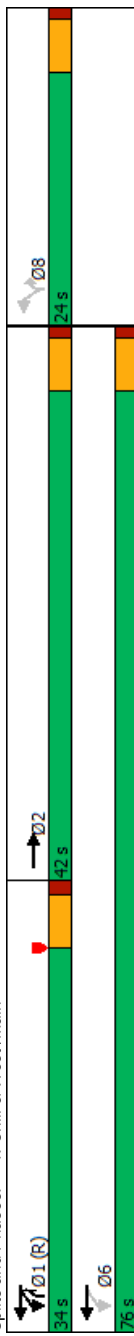
HCM Signalized Intersection Capacity Analysis 3: Genesee/Brown & Main

Bull's Head Urban Renewal TIS AM 2024 Full Build with Development and Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Future Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	15	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frb. ped/bikes	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.94	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1502	3058		1545	3020		1518	1507		1683	1972	1334
Flt Permitted	0.60	1.00		0.21	1.00		0.24	1.00		0.55	1.00	1.00
Satd. Flow (perm)	951	3058		344	3020		390	1507		972	1972	1334
Peak-hour factor, PHF	0.85	0.85	0.85	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92
Adj. Flow (vph)	172	588	246	164	201	41	149	212	142	67	264	146
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	172	834	0	164	242	0	149	355	0	67	264	146
Confl. Peds. (#/hr)	2		8	8		2		1		1		
Heavy Vehicles (%)	12%	3%	7%	9%	10%	0%	11%	8%	13%	0%	6%	13%
Turn Type	pm+pt	NA	NA	pm+pt	NA	NA	pm+pt	NA	NA	Perm	NA	pm+ov
Protected Phases	5	2		1	6		3	8		4		5
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	49.4	39.9		51.2	40.8		34.2	34.2		18.0	18.0	27.5
Effective Green, g (s)	49.4	39.9		51.2	40.8		34.2	34.2		18.0	18.0	27.5
Actuated g/C Ratio	0.49	0.40		0.51	0.41		0.34	0.34		0.18	0.18	0.28
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.5		5.5	5.5	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)	522	1220		301	1232		259	515		174	354	366
v/s Ratio Prot	0.03	c0.27		c0.06	0.08		0.06	c0.24		0.13	0.13	0.04
v/s Ratio Perm	0.13			0.22			0.13			0.07		0.07
v/c Ratio	0.33	0.68		0.54	0.20		0.58	0.69		0.39	0.75	0.40
Uniform Delay, d1	14.5	24.8		15.0	19.0		25.1	28.3		36.1	38.8	29.5
Progression Factor	0.85	0.83		1.20	0.92		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	2.2		1.1	0.3		1.9	3.1		0.5	7.3	0.3
Delay (s)	12.5	22.8		19.0	18.0		27.0	31.4		36.6	46.1	29.8
Level of Service	B	C		B	B		C	C		D	D	C
Approach Delay (s)		21.0			18.4			30.1			39.8	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			26.2				HCM 2000 Level of Service					
			0.71				C					
HCM 2000 Volume to Capacity ratio												
Actuated Cycle Length (s)			100.0				Sum of lost time (s)					
							20.5					
Intersection Capacity Utilization			69.5%				ICU Level of Service					
							C					
Analysis Period (min)			15									
c Critical Lane Group												

	EBT	EBR	WBL	WBT	NBL	NBR	Ø6
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø6
Lane Configurations	↩	↩	↩	↩	↩	↩	
Traffic Volume (vph)	336	4	227	213	25	560	
Future Volume (vph)	336	4	227	213	25	560	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	10	10	11	12	10	
Storage Length (ft)	200	0	0	0	0	0	
Storage Lanes	0	0	1	1	1	1	
Taper Length (ft)		25			25		Yes
Right Turn on Red		Yes					
Link Speed (mph)	30		30		30		
Link Distance (ft)	1754		378		136		
Travel Time (s)	39.9		8.6		3.1		
Confl. Peds. (#/hr)		5	5		8		1
Peak Hour Factor	0.79	0.79	0.89	0.89	0.89	0.89	
Heavy Vehicles (%)	9%	0%	9%	11%	0%	4%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	430	0	255	239	28	629	
Turn Type	NA	custom	NA	Perm	pm+ov		6
Protected Phases	2	1	16				
Permitted Phases							
Detector Phase	2	6	1	6	8	8	1
Switch Phase							
Minimum Initial (s)	6.0		10.0		6.0	10.0	10.0
Minimum Split (s)	24.0		15.0		24.0	15.0	24.0
Total Split (s)	42.0		34.0		24.0	34.0	76.0
Total Split (%)	42.0%		34.0%		24.0%	34.0%	76%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	
Total Lost Time (s)	5.0		5.0		5.0	5.0	
Lead/Lag	Lag	Lead				Lead	
Lead-Lag Optimize?							
Recall Mode	None		C-Max		None	C-Max	None
v/c Ratio	0.87		0.29		0.17	0.17	0.68
Control Delay	51.2		8.4		1.4	41.7	14.8
Queue Delay	1.8		0.2		0.0	0.0	0.1
Total Delay	53.0		8.6		1.4	41.7	14.9
Queue Length 50th (ft)	254		19		6	17	153
Queue Length 95th (ft)	287		116		57	39	317
Internal Link Dist (ft)	1674			298		56	
Turn Bay Length (ft)							
Base Capacity (vph)	601		883		1443	335	920
Starvation Cap Reductn	0		166		0	0	0
Spillback Cap Reductn	67		0		0	0	9
Storage Cap Reductn	0		0		0	0	0
Reduced v/c Ratio	0.81		0.36		0.17	0.08	0.69
Intersection Summary							
Area Type:	Other						
Cycle Length: 100							
Actuated Cycle Length: 100							
Offset: 65 (65%), Referenced to phase 1:WBTL, Start of Yellow							
Natural Cycle: 70							
Control Type: Actuated-Coordinated							

Splits and Phases: 4: Chili & West /Main



HCM Signalized Intersection Capacity Analysis
4: Chili & West /Main

Bull's Head Urban Renewal TIS
AM 2024 Full Build with Development and Mitigation

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	336	4	227	213	25	560
Future Volume (vph)	336	4	227	213	25	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	12	10
Total Lost time (s)	5.0	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
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	0.98	1.00
Frt	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1625	1546	1546	1655	1767	1445
Flt Permitted	1.00	0.19	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1625	317	1655	1655	1767	1445
Peak-hour factor, PHF	0.79	0.79	0.89	0.89	0.89	0.89
Adj. Flow (vph)	425	5	255	239	28	629
RTOR Reduction (vph)	1	0	0	0	0	106
Lane Group Flow (vph)	429	0	255	239	28	523
Confl. Peds. (#/hr)	5	5	5	8	8	1
Heavy Vehicles (%)	9%	0%	9%	11%	0%	4%
Turn Type	NA	custom	NA	NA	Perm	pm-ov
Protected Phases	2	1	16	1	8	1
Permitted Phases		6			8	8
Actuated Green, G (s)	30.3	83.2	83.2	6.8	54.7	54.7
Effective Green, g (s)	30.3	83.2	83.2	6.8	54.7	54.7
Actuated g/C Ratio	0.30	0.83	0.83	0.07	0.07	0.55
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	3.0	2.0	2.0
Lane Grp Cap (vph)	492	852	1376	120	862	
v/s Ratio Prot	c0.26	0.14	0.14		c0.29	
v/s Ratio Perm		0.11		0.02	0.07	
v/c Ratio	0.87	0.30	0.17	0.23	0.61	
Uniform Delay, d1	33.0	5.1	1.6	44.1	15.4	
Progression Factor	1.00	2.06	0.47	1.00	1.00	
Incremental Delay, d2	15.2	0.1	0.0	1.0	1.2	
Delay (s)	48.2	10.6	0.8	45.1	16.6	
Level of Service	D	B	A	D	B	
Approach Delay (s)	48.2		5.9	17.8		
Approach LOS	D		A	B		
Intersection Summary						
HCM 2000 Control Delay		22.3	HCM 2000 Level of Service			
HCM 2000 Volume to Capacity ratio		0.74	C			
Actuated Cycle Length (s)		100.0	Sum of lost time (s)			
Intersection Capacity Utilization		61.1%	ICU Level of Service			
Analysis Period (min)		15	B			
c Critical Lane Group						

Lanes, Volumes, Timings

6: Child & Maple

Bull's Head Urban Renewal TIS

AM 2024 Full Build with Development and Mitigation

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	54	45	6	1	25	7	7	148	9	16	146	22
Future Volume (vph)	54	45	6	1	25	7	7	148	9	16	146	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	14	14	14	15	15	15	12	12	12
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		677			1774			247			405	
Travel Time (s)		15.4			40.3			5.6			9.2	
Confl. Peds. (#/hr)	2		1	1		2			3	3		
Peak Hour Factor	0.81	0.81	0.81	0.55	0.55	0.55	0.76	0.76	0.76	0.86	0.86	0.86
Heavy Vehicles (%)	17%	18%	17%	0%	13%	29%	14%	9%	11%	0%	8%	29%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	130	0	0	60	0	0	216	0	0	215	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		24.0	24.0		24.0	24.0	
Total Split (s)	36.0	36.0		36.0	36.0		36.0	36.0		36.0	36.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-3.0			-3.0			-3.0			-3.0	
Total Lost Time (s)		3.0			3.0			3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
v/c Ratio		0.24			0.09			0.21			0.23	
Control Delay		8.7			6.4			7.6			7.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.7			6.4			7.6			7.7	
Queue Length 50th (ft)		12			4			20			19	
Queue Length 95th (ft)		40			12			60			70	
Internal Link Dist (ft)		597			1694			167			325	
Turn Bay Length (ft)												
Base Capacity (vph)		1301			1530			1713			1510	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.04			0.13			0.14	
Intersection Summary												
Area Type:	Other											
Cycle Length: 72												
Actuated Cycle Length: 36.1												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Splits and Phases:	6: Child & Maple											
	36 s											

HCM Signalized Intersection Capacity Analysis

6: Child & Maple

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	54	45	6	1	25	7	7	148	9	16	146	22
Future Volume (vph)	54	45	6	1	25	7	7	148	9	16	146	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	14	14	14	14	14	15	15	15	12	12	12
Total Lost time (s)	3.0	3.0	3.0				3.0			3.0		
Lane Util. Factor	1.00	1.00					1.00			1.00		
Flpb. ped/bikes	1.00	1.00					1.00			1.00		
Flpb. ped/bikes	1.00	1.00					1.00			1.00		
Flt	0.99	0.99					0.99			0.98		
Flt Protected	0.97	1.00					1.00			1.00		
Satd. Flow (prot)	1667	1685					1891			1694		
Flt Permitted	0.83	0.99					0.99			0.97		
Satd. Flow (perm)	1420	1670					1870			1646		
Peak-hour factor, PHF	0.81	0.81	0.81	0.55	0.55	0.55	0.76	0.76	0.76	0.86	0.86	0.86
Adj. Flow (vph)	67	56	7	2	45	13	9	195	12	19	170	26
RTOR Reduction (vph)	0	3	0	0	9	0	0	2	0	0	6	0
Lane Group Flow (vph)	0	127	0	0	51	0	0	214	0	0	209	0
Confl. Peds. (#/hr)	2		1	1		2		3		3		
Heavy Vehicles (%)	17%	18%	17%	0%	13%	29%	14%	9%	11%	0%	8%	29%
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA
Protected Phases	4	4	4	4	4	4	2	2	2	2	2	2
Permitted Phases	4											
Actuated Green, G (s)	8.9			8.9			16.3			16.3		
Effective Green, g (s)	11.9			11.9			19.3			19.3		
Actuated g/C Ratio	0.32			0.32			0.52			0.52		
Clearance Time (s)	6.0			6.0			6.0			6.0		
Vehicle Extension (s)	4.0			4.0			4.0			4.0		
Lane Grp Cap (vph)	454			534			970			853		
v/s Ratio Prot												
v/s Ratio Perm	c0.09			0.03			0.11			c0.13		
v/c Ratio	0.28			0.10			0.22			0.24		
Uniform Delay, d1	9.4			8.9			4.9			4.9		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	0.5			0.1			0.2			0.2		
Delay (s)	9.9			9.0			5.0			5.1		
Level of Service	A			A			A			A		
Approach Delay (s)	9.9			9.0			5.0			5.1		
Approach LOS	A			A			A			A		
Intersection Summary												
HCM 2000 Control Delay			6.5				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			37.2				Sum of lost time (s)			6.0		
Intersection Capacity Utilization			34.4%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Baseline

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HCM Signalized Intersection Capacity Analysis 200: Main & King

Baseline



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←↑	←↑		↘	↘
Traffic Volume (vph)	21	827	500	12	8	22
Future Volume (vph)	21	827	500	12	8	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	15
Total Lost time (s)		5.0	5.0		5.0	
Lane Util. Factor		0.95	0.95		1.00	
Frt		1.00	1.00		0.90	
Flt Protected		1.00	1.00		0.99	
Satd. Flow (prot)		3535	3526		1820	
Flt Permitted		0.94	1.00		0.99	
Satd. Flow (perm)		3323	3526		1820	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	871	526	13	8	23
RTOR Reduction (vph)	0	0	1	0	22	0
Lane Group Flow (vph)	0	893	538	0	9	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases	1					
Actuated Green, G (s)		38.5	38.5		1.5	
Effective Green, g (s)		38.5	38.5		1.5	
Actuated g/C Ratio		0.77	0.77		0.03	
Clearance Time (s)		5.0	5.0		5.0	
Vehicle Extension (s)		2.0	2.0		3.0	
Lane Grp Cap (vph)		2558	2715		54	
v/s Ratio Prot			0.15		c0.00	
v/s Ratio Perm		c0.27				
v/c Ratio		0.35	0.20		0.16	
Uniform Delay, d1		1.8	1.6		23.6	
Progression Factor		1.09	0.48		1.00	
Incremental Delay, d2		0.4	0.2		1.4	
Delay (s)		2.3	0.9		25.0	
Level of Service		A	A		C	
Approach Delay (s)		2.3	0.9		25.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay		2.3			HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.34				
Actuated Cycle Length (s)		50.0			Sum of lost time (s)	10.0
Intersection Capacity Utilization		51.3%			ICU Level of Service	A
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings
201: McDonald's/Canal & Main

Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Future Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	15	15	15
Right Turn on Red	Yes					Yes			Yes			Yes
Link Speed (mph)	30				30			30				30
Link Distance (ft)	663				1045			291				397
Travel Time (s)	15.1				23.8			6.6				9.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	839	0	0	669	0	31	27	0	0	26	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1		2			2		
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2		
Switch Phase												
Minimum Initial (s)	23.0	23.0		23.0	23.0		6.0	6.0		6.0		6.0
Minimum Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0		29.0
Total Split (s)	71.0	71.0		71.0	71.0		29.0	29.0		29.0		29.0
Total Split (%)	71.0%	71.0%		71.0%	71.0%		29.0%	29.0%		29.0%		29.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5		5.5
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag		Lag
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None		None
v/c Ratio	0.30	0.30		0.25	0.25		0.32	0.09		0.20		0.20
Control Delay	3.9	3.9		0.7	0.7		51.9	0.5		36.5		36.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Delay	3.9	3.9		0.7	0.7		51.9	0.5		36.5		36.5
Queue Length 50th (ft)	124	124		6	6		19	0		11		11
Queue Length 95th (ft)	0	0		3	3		48	0		36		36
Internal Link Dist (ft)	583			965			211			317		
Turn Bay Length (ft)												
Base Capacity (vph)	2833			2701			302	515		383		
Starvation Cap Reductn	0			0			0	0		0		
Spillback Cap Reductn	0			0			0	0		0		
Storage Cap Reductn	0			0			0	0		0		
Reduced v/c Ratio	0.30			0.25			0.10	0.05		0.07		
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	75 (75%), Referenced to phase 1:EBWB, Start of Green											
Natural Cycle:	70											
Control Type:	Actuated-Coordinated											
Splits and Phases:	201: McDonald's/Canal & Main											
												

HCM Signalized Intersection Capacity Analysis

201: McDonald's/Canal & Main

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4P			4P		5	1P			4P	
Traffic Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Future Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	15	15	15
Total Lost time (s)		6.0			6.0		5.5	5.5			5.5	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frt		0.99			1.00		1.00	0.85			0.96	
Flt Protected		1.00			1.00		0.95	1.00			0.97	
Satd. Flow (prot)		3512			3517		1652	1478			1912	
Flt Permitted		0.95			0.91		0.74	1.00			0.82	
Satd. Flow (perm)		3354			3195		1287	1478			1605	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	796	42	24	625	20	31	0	27	14	4	8
RTOR Reduction (vph)	0	2	0	0	1	0	0	25	0	0	7	0
Lane Group Flow (vph)	0	837	0	0	668	0	31	2	0	0	19	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		82.2			82.2		6.3	6.3			6.3	
Effective Green, g (s)		82.2			82.2		6.3	6.3			6.3	
Actuated g/C Ratio		0.82			0.82		0.06	0.06			0.06	
Clearance Time (s)		6.0			6.0		5.5	5.5			5.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)		2756			2626		81	93			101	
v/s Ratio Prot								0.00				
v/s Ratio Perm		c0.25			0.21		c0.02				0.01	
v/c Ratio		0.30			0.25		0.38	0.02			0.18	
Uniform Delay, d1		2.1			2.0		45.0	43.9			44.4	
Progression Factor		1.62			0.22		1.00	1.00			1.00	
Incremental Delay, d2		0.3			0.2		1.1	0.0			0.3	
Delay (s)		3.7			0.7		46.1	44.0			44.7	
Level of Service		A			A		D	D			D	
Approach Delay (s)		3.7			0.7			45.1			44.7	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			4.6			HCM 2000 Level of Service					A	
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)					11.5	
Intersection Capacity Utilization			51.5%			ICU Level of Service					A	
Analysis Period (min)			15									
c Critical Lane Group												

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Synchro 10 Report
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Lanes, Volumes, Timings
288: Ford/Broad & Main

Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Future Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0	0	100	100	100	125	0	125	0	125	0
Storage Lanes	1	0	0	1	1	1	1	0	0	1	1	0
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes
Right Turn on Red												
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	1045			417			1317			403		
Travel Time (s)	23.8			9.5			29.9			9.2		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)							48%					
Lane Group Flow (vph)	42	884	0	150	600	211	222	476	0	59	262	0
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	7	4		8		
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	5.0	6.0		6.0		
Minimum Split (s)	35.0	35.0		12.0	35.0	35.0	12.0	32.0		12.0		
Total Split (s)	48.0	48.0		12.0	60.0	60.0	18.0	40.0		22.0		
Total Split (%)	48.0%	48.0%		12.0%	60.0%	60.0%	18.0%	40.0%		22.0%		
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		
All-Red Time (s)	2.0	2.0		1.5	2.0	2.0	1.5	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		-0.5	0.0	0.0	0.5	0.0		0.0		
Total Lost Time (s)	6.0	6.0		5.0	6.0	6.0	6.0	6.0		6.0		
Lead/Lag	Lag	Lag		Lead		Lead	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	C-Max	C-Max		C-Max	C-Max	
v/c Ratio	0.13	0.59		0.51	0.31	0.22	0.65	0.55		0.42	0.45	
Control Delay	12.1	12.9		19.6	15.7	3.6	35.6	28.0		48.2	35.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	12.1	12.9		19.6	15.7	3.6	35.6	28.0		48.2	35.4	
Queue Length 50th (ft)	7	56		66	146	34	117	125		34	68	
Queue Length 95th (ft)	22	101		52	114	10	191	173		77	109	
Internal Link Dist (ft)	965			337			1237			323		
Turn Bay Length (ft)	125			100		100	125			125		
Base Capacity (vph)	333	1486		295	1911	951	341	866		140	576	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.13	0.59		0.51	0.31	0.22	0.65	0.55		0.42	0.45	

Intersection Summary
Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 81 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 288: Ford/Broad & Main



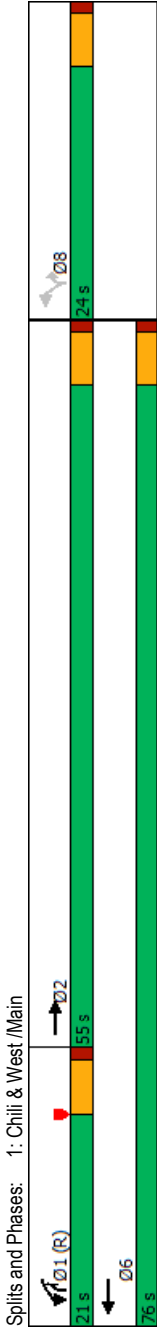
HCM Signalized Intersection Capacity Analysis

288: Ford/Broad & Main

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Future Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		5.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	0.91	0.91		1.00	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.98		0.95	1.00	
Satd. Flow (prot)	1770	3349		1770	3539	1583	1610	3294		1770	3410	
Flt Permitted	0.43	1.00		0.19	1.00	1.00	0.40	0.63		0.47	1.00	
Satd. Flow (perm)	792	3349		358	3539	1583	676	2126		876	3410	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	568	316	150	600	211	426	248	24	59	198	64
RTOR Reduction (vph)	0	76	0	0	0	97	0	4	0	0	31	0
Lane Group Flow (vph)	42	808	0	150	600	114	222	472	0	59	231	0
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases	2			1	6		7	4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	42.1	42.1		54.0	54.0	54.0	34.0	34.0		16.0	16.0	
Effective Green, g (s)	42.1	42.1		54.5	54.0	54.0	33.5	34.0		16.0	16.0	
Actuated g/C Ratio	0.42	0.42		0.54	0.54	0.54	0.34	0.34		0.16	0.16	
Clearance Time (s)	6.0	6.0		5.5	6.0	6.0	5.5	6.0		6.0	6.0	
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)	333	1409		292	1911	854	338	868		140	545	
v/s Ratio Prot		c0.24		c0.04	0.17		c0.08	0.07		0.07		
v/s Ratio Perm	0.05			0.24		0.07	c0.14	0.12		0.07		
v/c Ratio	0.13	0.57		0.51	0.31	0.13	0.66	0.54		0.42	0.42	
Uniform Delay, d1	17.7	22.1		13.8	12.7	11.4	26.0	26.7		37.8	37.8	
Progression Factor	0.62	0.59		1.21	1.19	1.80	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.7		0.6	0.4	0.3	9.6	2.4		9.1	2.4	
Delay (s)	11.7	14.7		17.2	15.5	20.9	35.6	29.2		46.9	40.3	
Level of Service	B	B		B	B	C	D	C		D	D	
Approach Delay (s)		14.6			17.0			31.2			41.5	
Approach LOS		B			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			22.3			HCM 2000 Level of Service						
HCM 2000 Volume to Capacity ratio			0.63			C						
Actuated Cycle Length (s)			100.0			Sum of lost time (s)						
Intersection Capacity Utilization			68.6%			ICU Level of Service						
Analysis Period (min)			15			C						
Critical Lane Group												

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	336	4	227	213	25	560
Future Volume (vph)	336	4	227	213	25	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	11	12	10
Storage Length (ft)	200	125	0	0	0	0
Storage Lanes	0	1	1	1	1	1
Taper Length (ft)	25					25
Right Turn on Red	Yes					Yes
Link Speed (mph)	30	30				
Link Distance (ft)	1754	378				
Travel Time (s)	39.9	8.6				
Confl. Peds. (#/hr)	5	5	5	8	8	1
Peak Hour Factor	0.79	0.79	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	9%	0%	9%	11%	0%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	430	0	255	239	28	629
Turn Type	NA	Prot	NA	Perm	pm+ov	
Protected Phases	2	1	6			
Permitted Phases						
Detector Phase	2	1	6	8	8	1
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0
Minimum Split (s)	24.0	15.0	24.0	24.0	15.0	15.0
Total Split (s)	55.0	21.0	76.0	24.0	21.0	21.0
Total Split (%)	55.0%	21.0%	76.0%	24.0%	21.0%	21.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lead			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	None	None	C-Max	
v/c Ratio	0.81	0.35	0.17	0.17	0.67	
Control Delay	42.1	22.3	2.6	41.7	12.0	
Queue Delay	0.7	0.0	0.0	0.0	1.2	
Total Delay	42.8	22.3	2.6	41.7	13.3	
Queue Length 50th (ft)	248	73	7	17	99	
Queue Length 95th (ft)	255	m235	m103	39	274	
Internal Link Dist (ft)	1674	298				
Turn Bay Length (ft)	125					
Base Capacity (vph)	813	734	1443	335	945	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	146	0	0	0	141	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.64	0.35	0.17	0.08	0.78	
Intersection Summary						
Area Type:	Other					
Cycle Length: 100						
Actuated Cycle Length: 100						
Offset: 65 (65%), Referenced to phase 1:WBL, Start of Yellow						
Natural Cycle: 75						
Control Type: Actuated-Coordinated						
Volume for 95th percentile queue is metered by upstream signal.						



HCM Signalized Intersection Capacity Analysis
1: Chili & West /Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

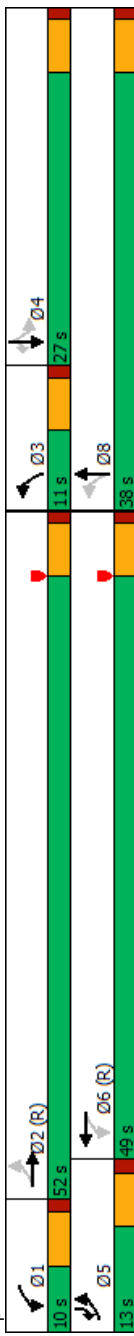
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	336	4	227	213	25	560
Future Volume (vph)	336	4	227	213	25	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	12	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	0.98	1.00
Frt	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1625	1546	1546	1655	1767	1445
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1625	1546	1546	1655	1767	1445
Peak-hour factor, PHF	0.79	0.79	0.89	0.89	0.89	0.89
Adj. Flow (vph)	425	5	255	239	28	629
RTOR Reduction (vph)	1	0	0	0	0	168
Lane Group Flow (vph)	429	0	255	239	28	461
Confl. Peds. (#/hr)	5	5	5	8	8	1
Heavy Vehicles (%)	9%	0%	9%	11%	0%	4%
Turn Type	NA	Prot	NA	Perm	pm-ov	
Protected Phases	2	1	6	1	8	
Permitted Phases						
Actuated Green, G (s)	32.7	45.5	83.2	6.8	52.3	
Effective Green, g (s)	32.7	45.5	83.2	6.8	52.3	
Actuated g/C Ratio	0.33	0.46	0.83	0.07	0.52	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	3.0	2.0	
Lane Grp Cap (vph)	531	703	1376	120	827	
v/s Ratio Prot	c0.26	0.16	0.14		c0.25	
v/s Ratio Perm				0.02	0.07	
v/c Ratio	0.81	0.36	0.17	0.23	0.56	
Uniform Delay, d1	30.8	17.8	1.6	44.1	16.1	
Progression Factor	1.00	0.92	0.98	1.00	1.00	
Incremental Delay, d2	8.4	1.3	0.0	1.0	0.8	
Delay (s)	39.1	17.7	1.6	45.1	16.9	
Level of Service	D	B	A	D	B	
Approach Delay (s)	39.1		9.9	18.1		
Approach LOS	D		A	B		
Intersection Summary						
HCM 2000 Control Delay		21.3	HCM 2000 Level of Service			
HCM 2000 Volume to Capacity ratio		0.69	C			
Actuated Cycle Length (s)		100.0	Sum of lost time (s)			
Intersection Capacity Utilization		61.1%	ICU Level of Service			
Analysis Period (min)		15	B			
c Critical Lane Group						

Lanes, Volumes, Timings
2: Genesee/Brown & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Future Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	15	10
Storage Length (ft)	150	225	200	200	200	200	0	0	0	100	200	200
Storage Lanes	1	0	0	1	1	0	1	0	0	1	1	1
Taper Length (ft)	25	No	No	25	25	No	25	25	No	25	25	No
Right Turn on Red												
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	378	378	378	378	378	378	378	378	378	378	378	378
Travel Time (s)	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Confl. Peds. (#/hr)	2	8	8	8	8	2	2	2	2	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	12%	3%	7%	9%	10%	0%	11%	8%	13%	0%	6%	13%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	834	0	164	242	0	149	355	0	67	264	146
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA	Perm	NA	pm+ov
Protected Phases	5	2	2	1	6	3	8	8	4	4	4	5
Permitted Phases	2	2	2	6	6	8	8	8	4	4	4	4
Detector Phase	5	2	2	1	6	3	8	8	4	4	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	26.0	10.0	26.0	26.0	10.0	28.0	28.0	28.0	28.0	28.0	10.0
Total Split (s)	13.0	52.0	10.0	49.0	49.0	11.0	38.0	38.0	27.0	27.0	27.0	13.0
Total Split (%)	13.0%	52.0%	10.0%	49.0%	49.0%	11.0%	38.0%	38.0%	27.0%	27.0%	27.0%	13.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None	None
v/c Ratio	0.31	1.10	0.78	0.32	0.32	0.87	0.83	0.83	0.43	0.76	0.36	0.36
Control Delay	8.6	83.4	59.8	10.5	10.5	73.0	50.0	50.0	44.4	53.5	28.5	28.5
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	83.6	59.8	10.5	10.5	73.0	50.0	50.0	44.4	53.5	28.5	28.5
Queue Length 50th (ft)	38	~618	56	72	72	75	210	210	38	161	70	70
Queue Length 95th (ft)	59	#761	#229	43	43	#156	295	295	78	237	119	119
Internal Link Dist (ft)	298	298	233	233	233	275	275	275	227	227	227	227
Turn Bay Length (ft)	150	200	200	200	200	171	495	495	195	433	414	414
Base Capacity (vph)	563	756	210	766	766	171	495	495	195	433	414	414
Starvation Cap Reductn	0	21	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	1.13	0.78	0.32	0.32	0.87	0.72	0.72	0.34	0.61	0.35	0.35
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	10 (10%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow											
Natural Cycle:	100											
Control Type:	Actuated-Coordinated											
~	Volume exceeds capacity, queue is theoretically infinite.											
	Queue shown is maximum after two cycles.											
#	95th percentile volume exceeds capacity, queue may be longer.											
	Queue shown is maximum after two cycles.											

Splits and Phases: 2: Genesee/Brown & Main



HCM Signalized Intersection Capacity Analysis
2: Genesee/Brown & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

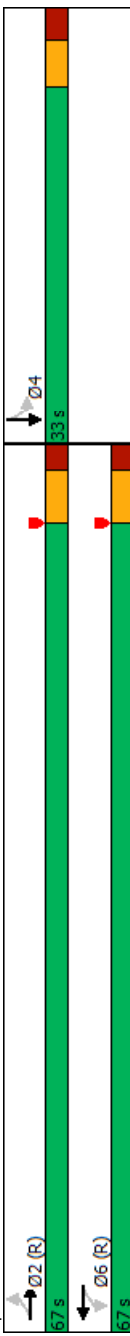
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Future Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	15	10
Total Lost time (s)	5.0	5.0		5.0	5.0		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
Flrb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.97		1.00	0.94		1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1501	1608		1546	1589		1518	1502		1683	1972	1334
Fit Permitted	0.58	1.00		0.08	1.00		0.22	1.00		0.50	1.00	1.00
Satd. Flow (perm)	924	1608		135	1589		356	1502		887	1972	1334
Peak-hour factor, PHF	0.85	0.85	0.85	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92
Adj. Flow (vph)	172	588	246	164	201	41	149	212	142	67	264	146
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	172	834	0	164	242	0	149	355	0	67	264	146
Confl. Peds. (#/hr)	2		8	8		2		1		1		
Heavy Vehicles (%)	12%	3%	7%	9%	10%	0%	11%	8%	13%	0%	6%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6		3	8			4	5
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	55.2	47.0		57.6	48.2		28.6	28.6		17.6	17.6	25.8
Effective Green, g (s)	55.2	47.0		57.6	48.2		28.6	28.6		17.6	17.6	25.8
Actuated g/C Ratio	0.55	0.47		0.58	0.48		0.29	0.29		0.18	0.18	0.26
Clearance Time (s)	5.0	5.0		5.0	5.0		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)	557	755		210	765		171	429		156	347	410
v/s Ratio Prot	0.03	c0.52		c0.07	0.15		0.05	c0.24		0.13	0.03	
v/s Ratio Perm	0.15			0.38			c0.20			0.08		0.08
v/c Ratio	0.31	1.10		0.78	0.32		0.87	0.83		0.43	0.76	0.36
Uniform Delay, d1	11.4	26.5		24.5	15.8		32.3	33.4		36.7	39.2	30.3
Progression Factor	0.77	0.72		1.85	0.54		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	62.2		15.4	1.1		34.3	11.8		0.7	8.6	0.2
Delay (s)	8.9	81.3		60.8	9.7		66.6	45.2		37.4	47.8	30.5
Level of Service	A	F		E	A		E	D		D	D	C
Approach Delay (s)		68.9			30.3			51.5			41.0	
Approach LOS		E			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			53.2			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				20.0		
Intersection Capacity Utilization			86.3%			ICU Level of Service				E		
Analysis Period (min)			15									
Critical Lane Group												

Lanes, Volumes, Timings
3: Henion/Rite Aid & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Future Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0	50	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	1	0	0	0	0	0	0	0	0
Taper Length (ft)	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes
Right Turn on Red	30	30	30	30	30	30	30	30	30	30	30	30
Link Speed (mph)	177	177	177	177	177	177	177	177	177	177	177	177
Link Distance (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Travel Time (s)	5	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90	0.75	0.75	10
Confl. Peds. (#/hr)	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90	0.75	0.75	10
Peak Hour Factor	0%	6%	0%	0%	10%	0%	2%	2%	2%	0%	0%	17%
Heavy Vehicles (%)	0	0	0	0	5	5	0	0	0	0	0	0
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)	7	699	0	21	433	0	0	0	0	0	26	0
Lane Group Flow (vph)	Perm	NA	Perm	Perm	NA	NA	Perm	Perm	Perm	Perm	NA	NA
Turn Type	2	2	2	6	6	6	4	4	4	4	4	4
Protected Phases	2	2	2	6	6	6	4	4	4	4	4	4
Permitted Phases	2	2	2	6	6	6	4	4	4	4	4	4
Detector Phase	2	2	2	6	6	6	4	4	4	4	4	4
Switch Phase	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Minimum Initial (s)	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0
Minimum Split (s)	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0
Total Split (s)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%
Total Split (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Yellow Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Total Lost Time (s)	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag	Lead/Lag
Lead-Lag Optimize?	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Recall Mode	0.01	0.46	0.46	0.04	0.30	0.30	0.04	0.30	0.30	0.04	0.30	0.30
v/c Ratio	2.9	2.7	2.7	2.1	2.3	2.3	2.1	2.3	2.3	2.1	2.3	2.3
Control Delay	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	2.9	3.1	3.1	2.1	2.3	2.3	2.1	2.3	2.3	2.1	2.3	2.3
Total Delay	1	50	50	1	35	35	1	35	35	1	35	35
Queue Length 50th (ft)	m1	m142	m142	m6	57	57	m6	57	57	m6	57	57
Queue Length 95th (ft)	50	97	97	50	1087	1087	50	1087	1087	50	1087	1087
Internal Link Dist (ft)	821	1523	1523	595	1442	1442	595	1442	1442	595	1442	1442
Turn Bay Length (ft)	0	371	371	0	0	0	0	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0.01	0.61	0.61	0.04	0.30	0.30	0.04	0.30	0.30	0.04	0.30	0.30
Reduced v/c Ratio	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary	Intersection Summary
Area Type:	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other
Cycle Length:	100	100	100	100	100	100	100	100	100	100	100	100
Actuated Cycle Length:	100	100	100	100	100	100	100	100	100	100	100	100
Offset:	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	19 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle:	65	65	65	65	65	65	65	65	65	65	65	65
Control Type:	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated
m	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Henion/Rite Aid & Main



HCM Signalized Intersection Capacity Analysis
3: Henion/Rite Aid & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Future Volume (vph)	7	638	26	19	391	7	0	0	0	8	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0						6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00						1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00						0.99	
Frt	1.00	0.99		1.00	1.00						0.96	
Flt Protected	0.95	1.00		0.95	1.00						0.98	
Satd. Flow (prot)	1789	1784		1798	1690						1664	
Flt Permitted	0.51	1.00		0.37	1.00						0.98	
Satd. Flow (perm)	960	1784		696	1690						1664	
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90	0.75	0.75	0.75
Adj. Flow (vph)	7	672	27	21	425	8	0	0	0	11	7	8
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	7	698	0	21	433	0	0	0	0	0	19	0
Confl. Peds. (#/hr)	5		6	6		5	10	6	6		10	
Heavy Vehicles (%)	0%	6%	0%	0%	10%	0%	2%	2%	2%	0%	0%	17%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm			Perm	NA		
Protected Phases	2			6						4		
Permitted Phases	2			6					4			
Actuated Green, G (s)	80.6	80.6		80.6	80.6					7.4		
Effective Green, g (s)	80.6	80.6		80.6	80.6					7.4		
Actuated g/C Ratio	0.81	0.81		0.81	0.81					0.07		
Clearance Time (s)	6.0	6.0		6.0	6.0					6.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0		
Lane Grp Cap (vph)	773	1437		560	1362					123		
v/s Ratio Prot		c0.39			0.26							
v/s Ratio Perm	0.01			0.03						0.01		
v/c Ratio	0.01	0.49		0.04	0.32					0.15		
Uniform Delay, d1	1.9	3.1		1.9	2.5					43.4		
Progression Factor	0.66	0.54		0.49	0.48					1.00		
Incremental Delay, d2	0.0	0.4		0.1	0.6					0.6		
Delay (s)	1.3	2.0		1.1	1.8					43.9		
Level of Service	A	A		A	A					D		
Approach Delay (s)		2.0			1.8			0.0		43.9		
Approach LOS		A			A			A		D		
Intersection Summary												
HCM 2000 Control Delay			2.8			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			56.4%			ICU Level of Service			B			
Analysis Period (min)			15									
Critical Lane Group												

Lanes, Volumes, Timings
4: Jefferson & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35			
Future Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10			
Storage Length (ft)	75		0	100		0	50		0	100		0			
Storage Lanes	1		0	1		0	0		0	1		0			
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes			
Right Turn on Red															
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		325			653			1957			388				
Travel Time (s)		7.4			14.8			44.5			8.8				
Confl. Peds. (#/hr)	11		3	3		11	2		1	1		2			
Peak Hour Factor	0.97	0.97	0.97	0.84	0.84	0.84	0.80	0.80	0.80	0.83	0.83	0.83			
Heavy Vehicles (%)	9%	5%	29%	3%	8%	14%	11%	14%	5%	7%	7%	6%			
Shared Lane Traffic (%)															
Lane Group Flow (vph)	26	649	0	37	456	0	0	182	0	34	143	0			
Turn Type	Perm	NA	0	Perm	NA	0	Perm	NA	0	Perm	NA	0			
Protected Phases		1			1			2			2				
Permitted Phases	1			1				2			2				
Detector Phase	1	1		1	1		2	2		2	2				
Switch Phase															
Minimum Initial (s)	14.0	14.0		14.0	14.0		6.0	6.0		6.0	6.0				
Minimum Split (s)	25.0	25.0		25.0	25.0		27.0	27.0		27.0	27.0				
Total Split (s)	69.0	69.0		69.0	69.0		31.0	31.0		31.0	31.0				
Total Split (%)	69.0%	69.0%		69.0%	69.0%		31.0%	31.0%		31.0%	31.0%				
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0				
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.5	-3.5		-3.5	-3.5				
Total Lost Time (s)	3.0	3.0		3.0	3.0			2.5		2.5	2.5				
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag				
Lead-Lag Optimize?															
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None				
v/c Ratio	0.05	0.52		0.08	0.37		0.63	0.63		0.24	0.44				
Control Delay	4.9	8.5		3.5	4.7		41.3	41.3		35.8	33.0				
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0				
Total Delay	4.9	8.5		3.5	4.7		41.3	41.3		35.8	33.0				
Queue Length 50th (ft)	0	2		0	74		94	94		18	68				
Queue Length 95th (ft)	m17	559		13	98		130	130		40	105				
Internal Link Dist (ft)		245			573		1877	1877			308				
Turn Bay Length (ft)	75			100						100					
Base Capacity (vph)	557	1247		458	1219		411	411		207	464				
Starvation Cap Reductn	0	0		0	0		0	0		0	0				
Spillback Cap Reductn	0	0		0	0		0	0		0	0				
Storage Cap Reductn	0	0		0	0		0	0		0	0				
Reduced v/c Ratio	0.05	0.52		0.08	0.37		0.44	0.44		0.16	0.31				
Intersection Summary															
Area Type:	Other														
Cycle Length:	100														
Actuated Cycle Length:	100														
Offset:	22 (22%), Referenced to phase 1:EBWB, Start of Green														
Natural Cycle:	60														
Control Type:	Actuated-Coordinated														
m	Volume for 95th percentile queue is metered by upstream signal.														

Splits and Phases: 4: Jefferson & Main

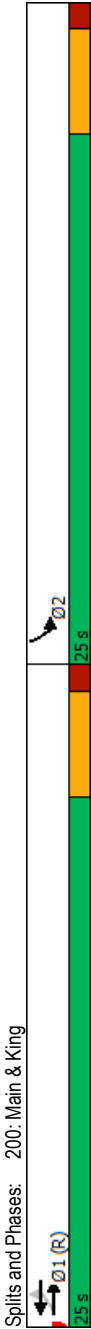


HCM Signalized Intersection Capacity Analysis
4: Jefferson & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35
Future Volume (vph)	25	606	23	31	369	14	29	72	45	28	84	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	10	10
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	2.5	2.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00
Flpb, ped/bikes	0.99	1.00	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	0.99	1.00	0.96	0.96	1.00	0.96	1.00	0.96
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00	0.99	0.99	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1525	1664	1632	1632	1626	1626	1510	1510	1572	1572	1577	1577
Flt Permitted	0.46	1.00	0.36	1.00	1.00	1.00	0.91	0.91	0.44	1.00	1.00	0.44
Satd. Flow (perm)	744	1664	612	1626	1626	1626	1390	1390	729	1577	1577	1577
Peak-hour factor, PHF	0.97	0.97	0.97	0.84	0.84	0.84	0.80	0.80	0.80	0.83	0.83	0.83
Adj. Flow (vph)	26	625	24	37	439	17	36	90	56	34	101	42
RTOR Reduction (vph)	0	1	0	0	1	0	0	18	0	0	17	0
Lane Group Flow (vph)	26	648	0	37	455	0	0	164	0	34	126	0
Confl. Peds. (#/hr)	11	3	3	3	11	11	2	1	1	1	2	2
Heavy Vehicles (%)	9%	5%	29%	3%	8%	14%	11%	14%	5%	7%	7%	6%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	1	1	1	1	1	1	2	2	2	2	2	2
Permitted Phases	1	1	1	1	1	1	2	2	2	2	2	2
Actuated Green, G (s)	71.9	71.9	71.9	71.9	71.9	71.9	16.1	16.1	16.1	16.1	16.1	16.1
Effective Green, g (s)	74.9	74.9	74.9	74.9	74.9	74.9	19.6	19.6	19.6	19.6	19.6	19.6
Actuated g/C Ratio	0.75	0.75	0.75	0.75	0.75	0.75	0.20	0.20	0.20	0.20	0.20	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	557	1246	458	1217	1217	1217	272	272	142	309	0.08	0.08
v/s Ratio Prot	c0.39	c0.39	c0.39	c0.39	c0.39	c0.39	c0.12	c0.12	c0.12	c0.12	c0.12	c0.12
v/s Ratio Perm	0.03	0.05	0.06	0.08	0.37	0.24	0.60	0.24	0.24	0.41	0.41	0.41
v/c Ratio	3.3	5.2	3.4	4.4	4.4	4.4	36.7	36.7	33.9	35.1	35.1	35.1
Uniform Delay, d1	1.02	1.13	0.68	0.73	0.73	0.73	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.1	1.4	0.3	0.9	0.9	0.9	2.6	2.6	0.3	0.3	0.3	0.3
Incremental Delay, d2	3.5	7.2	2.6	4.1	4.1	4.1	39.2	39.2	34.2	35.5	35.5	35.5
Delay (s)	A	A	A	A	A	A	D	D	C	D	D	D
Level of Service	A	A	A	A	A	A	D	D	C	D	D	D
Approach Delay (s)	7.1	7.1	7.1	4.0	4.0	4.0	39.2	39.2	35.2	35.2	35.2	35.2
Approach LOS	A	A	A	A	A	A	D	D	D	D	D	D
Intersection Summary												
HCM 2000 Control Delay	13.2			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.54											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			5.5					
Intersection Capacity Utilization	54.9%			ICU Level of Service			A					
Analysis Period (min)	15											
Critical Lane Group												

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	827	500	12	8	22
Future Volume (vph)	21	827	500	12	8	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	75			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25			Yes	25	Yes
Right Turn on Red						
Link Speed (mph)		30	30		30	
Link Distance (ft)		653	663		382	
Travel Time (s)		14.8	15.1		8.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	871	539	0	31	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases	1					
Detector Phase	1	1	1		2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		6.0	
Minimum Split (s)	25.0	25.0	25.0		25.0	
Total Split (s)	25.0	25.0	25.0		25.0	
Total Split (%)	50.0%	50.0%	50.0%		50.0%	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag	Lead	Lead	Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max		None	
v/c Ratio	0.03	0.50	0.31		0.12	
Control Delay	1.5	4.1	2.3		12.3	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	1.5	4.1	2.3		12.3	
Queue Length 50th (ft)	0	0	0		2	
Queue Length 95th (ft)	m5	408	142		20	
Internal Link Dist (ft)		573	583		302	
Turn Bay Length (ft)	75					
Base Capacity (vph)	802	1732	1727		741	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.03	0.50	0.31		0.04	
Intersection Summary						
Area Type:	Other					
Cycle Length: 50						
Actuated Cycle Length: 50						
Offset: 6 (12%), Referenced to phase 1:EBWB, Start of Green						
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
m Volume for 95th percentile queue is metered by upstream signal.						



HCM Signalized Intersection Capacity Analysis
200: Main & King

West Main Street Study
AM 2024 - Alt 1 Road Diet



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	← ↑ →	↑	← ↑ →		← ↑	←
Traffic Volume (vph)	21	827	500	12	8	22
Future Volume (vph)	21	827	500	12	8	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	15
Total Lost time (s)	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.90	
Flt Protected	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	1863	1857		1820	
Flt Permitted	0.46	1.00	1.00		0.99	
Satd. Flow (perm)	863	1863	1857		1820	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	871	526	13	8	23
RTOR Reduction (vph)	0	0	1	0	22	0
Lane Group Flow (vph)	22	871	538	0	9	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases	1	1	1		2	
Permitted Phases	1					
Actuated Green, G (s)	38.5	38.5	38.5		1.5	
Effective Green, g (s)	38.5	38.5	38.5		1.5	
Actuated g/C Ratio	0.77	0.77	0.77		0.03	
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0		3.0	
Lane Grp Cap (vph)	664	1434	1429		54	
v/s Ratio Prot		c0.47	0.29		c0.00	
v/s Ratio Perm	0.03					
v/c Ratio	0.03	0.61	0.38		0.16	
Uniform Delay, d1	1.4	2.5	1.9		23.6	
Progression Factor	0.97	1.69	1.43		1.00	
Incremental Delay, d2	0.1	1.8	0.7		1.4	
Delay (s)	1.4	6.0	3.4		25.0	
Level of Service	A	A	A		C	
Approach Delay (s)		5.9	3.4		25.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay		5.4			HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.59				
Actuated Cycle Length (s)		50.0			Sum of lost time (s)	10.0
Intersection Capacity Utilization		56.9%			ICU Level of Service	B
Analysis Period (min)		15				
c Critical Lane Group						

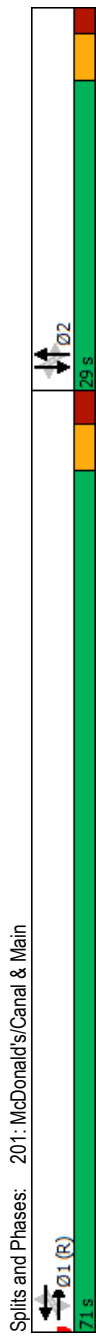
Lanes, Volumes, Timings

201: McDonald's/Canal & Main

West Main Street Study

AM 2024 - Alt 1 Road Diet

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Future Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	15	15	15
Storage Length (ft)	75	0	0	75	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	1	0	0	1	0	0	0	0	0
Taper Length (ft)	25	Yes		25	Yes		25	Yes		25	Yes	
Right Turn on Red												
Link Speed (mph)	30											
Link Distance (ft)	663											
Travel Time (s)	15.1											
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	838	0	24	645	0	31	27	0	0	26	0
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	NA
Protected Phases	1											
Permitted Phases	1	1	1	1	1	2	2	2	2	2	2	2
Detector Phase	1	1	1	1	1	2	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	23.0	23.0	23.0		23.0	6.0		6.0	6.0		6.0	6.0
Minimum Split (s)	41.0	41.0	41.0		41.0	29.0		29.0	29.0		29.0	29.0
Total Split (s)	71.0	71.0	71.0		71.0	29.0		29.0	29.0		29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%		71.0%	29.0%		29.0%	29.0%		29.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5
All-Red Time (s)	2.5	2.5	2.5		2.5	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	5.5		5.5	5.5		5.5	5.5
Lead/Lag	Lead	Lead	Lead		Lead	Lag		Lag	Lag		Lag	Lag
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max		C-Max	None		None	None		None	None
v/c Ratio	0.00	0.54	0.05		0.41	0.32		0.09	0.20		0.20	0.20
Control Delay	1.0	5.1	1.9		2.3	51.9		0.5	36.5		36.5	36.5
Queue Delay	0.0	0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	1.0	5.2	1.9		2.3	51.9		0.5	36.5		36.5	36.5
Queue Length 50th (ft)	0	262	2		50	19		0	11		36	36
Queue Length 95th (ft)	m0	3	m4		70	48		0	317		317	317
Internal Link Dist (ft)												
Turn Bay Length (ft)	75											
Base Capacity (vph)	629	1561	487		1565	302		515	383		383	383
Starvation Cap Reductn	0	62	0		0	0		0	0		0	0
Spillback Cap Reductn	0	0	0		0	0		0	0		0	0
Storage Cap Reductn	0	0	0		0	0		0	0		0	0
Reduced v/c Ratio	0.00	0.56	0.05		0.41	0.10		0.05	0.07		0.07	0.07
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 75 (75%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 70												
Control Type: Actuated-Coordinated												
m Volume for 95th percentile queue is metered by upstream signal.												



HCM Signalized Intersection Capacity Analysis
201: McDonald's/Canal & Main

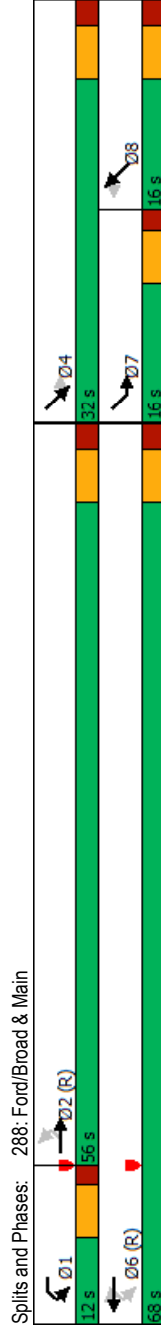
West Main Street Study
AM 2024 - Alt 1 Road Diet

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8			
Future Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Width	12	12	12	12	12	12	10	10	10	15	15	15			
Total Lost time (s)	6.0	6.0		6.0	6.0		5.5	5.5			5.5				
Lane Util. Factor	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	0.85			0.96				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97				
Satd. Flow (prot)	1770	1849		1770	1854		1652	1478			1912				
Flt Permitted	0.40	1.00		0.31	1.00		0.74	1.00			0.82				
Satd. Flow (perm)	745	1849		578	1854		1287	1478			1605				
Peak-hour factor, PHF	0.95	0.95		0.95	0.95		0.95	0.95			0.95				
Adj. Flow (vph)	1	796	42	24	625	20	31	0	27	14	4	8			
RTOR Reduction (vph)	0	1	0	0	1	0	0	25	0	0	7	0			
Lane Group Flow (vph)	1	837	0	24	644	0	31	2	0	0	19	0			
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA				
Protected Phases	1			1				2			2				
Permitted Phases	1			1			2			2					
Actuated Green, G (s)	82.2	82.2		82.2	82.2		6.3	6.3			6.3				
Effective Green, g (s)	82.2	82.2		82.2	82.2		6.3	6.3			6.3				
Actuated g/C Ratio	0.82	0.82		0.82	0.82		0.06	0.06			0.06				
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5			5.5				
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0				
Lane Grp Cap (vph)	612	1519		475	1523		81	93			101				
v/s Ratio Prot	c0.45			0.35			c0.02				0.01				
v/s Ratio Perm	0.00			0.04											
v/c Ratio	0.00	0.55		0.05	0.42		0.38	0.02			0.18				
Uniform Delay, d1	1.6	2.9		1.7	2.4		45.0	43.9			44.4				
Progression Factor	0.40	1.18		0.78	0.60		1.00	1.00			1.00				
Incremental Delay, d2	0.0	1.3		0.2	0.7		1.1	0.0			0.3				
Delay (s)	0.6	4.7		1.5	2.2		46.1	44.0			44.7				
Level of Service	A	A		A	A		D	D			D				
Approach Delay (s)		4.7			2.2			45.1			44.7				
Approach LOS		A			A			D			D				
Intersection Summary															
HCM 2000 Control Delay			5.8			HCM 2000 Level of Service				A					
HCM 2000 Volume to Capacity ratio			0.54												
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				11.5					
Intersection Capacity Utilization			59.9%			ICU Level of Service				B					
Analysis Period (min)			15												
c Critical Lane Group															

Lanes, Volumes, Timings
288: Ford/Broad & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58	
Future Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	125	0	0	100	100	100	125	0	0	125	0	0	
Storage Lanes	1	0	0	1	1	1	1	0	0	1	0	0	
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes	
Right Turn on Red		30			30			30			30		
Link Speed (mph)		1045			417			1317			403		
Link Distance (ft)		23.8			9.5			29.9			9.2		
Travel Time (s)		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Peak Hour Factor		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Shared Lane Traffic (%)							48%						
Lane Group Flow (vph)	42	884	0	150	600	211	222	476	0	59	262	0	
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	NA	NA	0	
Protected Phases	2	2	1	6	6	6	7	4	4	8	8	8	
Permitted Phases	2	2	2	6	6	6	4	4	4	8	8	8	
Detector Phase	2	2	2	1	6	6	7	4	4	8	8	8	
Switch Phase													
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	5.0	6.0		6.0	6.0		
Minimum Split (s)	35.0	35.0		12.0	35.0	35.0	12.0	32.0		12.0	12.0		
Total Split (s)	56.0	56.0		12.0	68.0	68.0	16.0	32.0		16.0	16.0		
Total Split (%)	56.0%	56.0%		12.0%	68.0%	68.0%	16.0%	32.0%		16.0%	16.0%		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		-0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag	
Lead-Lag Optimize?													
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	Max	Max	Max	Max	Max	Max	
v/c Ratio	0.11	0.98		0.76	0.52	0.20	0.91	0.73	0.68	0.70	0.70	0.70	
Control Delay	14.7	48.4		41.3	12.7	2.6	73.5	39.5	80.9	48.8	48.8	48.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	14.7	48.4		41.3	12.7	2.6	73.5	39.5	80.9	48.8	48.8	48.8	
Queue Length 50th (ft)	9	519		42	197	10	134	142	37	74	74	74	
Queue Length 95th (ft)	m27	#828		#142	284	37	#245	197	#104	#121	#104	#121	
Internal Link Dist (ft)		965		337			1237				323		
Turn Bay Length (ft)	125			100	100	125		125			125		
Base Capacity (vph)	399	901		198	1155	1044	244	663	87	372	372	372	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.98		0.76	0.52	0.20	0.91	0.73	0.68	0.70	0.70	0.70	
Intersection Summary													
Area Type:	Other												
Cycle Length:	100												
Actuated Cycle Length:	100												
Offset:	81 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green												
Natural Cycle:	90												
Control Type:	Actuated-Coordinated												
#	95th percentile volume exceeds capacity, queue may be longer.												
m	Queue shown is maximum after two cycles.												
	Volume for 95th percentile queue is metered by upstream signal.												



HCM Signalized Intersection Capacity Analysis
288: Ford/Broad & Main

West Main Street Study
AM 2024 - Alt 1 Road Diet

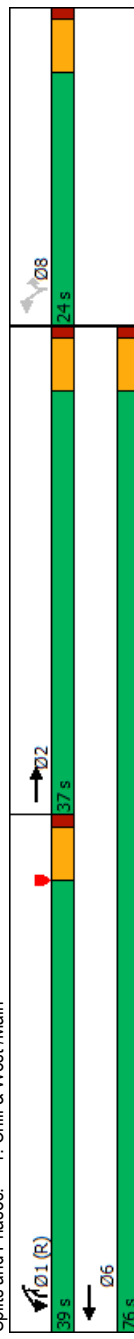
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Future Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		5.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91		1.00	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.98		0.95	1.00	
Satd. Flow (prot)	1770	1763		1770	1863	1583	1610	3294		1770	3410	
Flt Permitted	0.43	1.00		0.07	1.00	1.00	0.31	0.60		0.47	1.00	
Satd. Flow (perm)	799	1763		134	1863	1583	518	2003		876	3410	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	568	316	150	600	211	426	248	24	59	198	64
RTOR Reduction (vph)	0	20	0	0	0	63	0	4	0	0	32	0
Lane Group Flow (vph)	42	864	0	150	600	148	222	472	0	59	231	0
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	NA	NA
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	50.0	50.0		62.0	62.0	62.0	26.0	26.0		10.0	10.0	
Effective Green, g (s)	50.0	50.0		62.5	62.0	62.0	25.5	26.0		10.0	10.0	
Actuated g/C Ratio	0.50	0.50		0.62	0.62	0.62	0.26	0.26		0.10	0.10	
Clearance Time (s)	6.0	6.0		5.5	6.0	6.0	5.5	6.0		6.0	6.0	
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)	399	881		198	1155	981	241	656		87	341	
v/s Ratio Prot		c0.49		c0.05	0.32		c0.09	0.08			0.07	
v/s Ratio Perm	0.05			0.76	0.52	0.09	c0.14	0.11		0.07		
v/c Ratio	0.11	0.98		0.76	0.52	0.15	0.92	0.72		0.68	0.68	
Uniform Delay, d1	13.2	24.5		23.4	10.7	8.0	33.8	33.7		43.4	43.4	
Progression Factor	1.04	0.97		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	24.5		13.6	1.7	0.3	40.7	6.7		35.1	10.3	
Delay (s)	14.2	48.3		37.1	12.3	8.3	74.4	40.4		78.5	53.7	
Level of Service	B	D		D	B	A	E	D		E	D	
Approach Delay (s)		46.8			15.3			51.2			58.3	
Approach LOS		D			B			D			E	
Intersection Summary												
HCM 2000 Control Delay			38.7			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				23.0		
Intersection Capacity Utilization			89.6%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Chili & West /Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩	↩	↩	↩	↩	↩
Traffic Volume (vph)	336	4	227	213	25	560
Future Volume (vph)	336	4	227	213	25	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	11	12	10
Storage Length (ft)	200	100	0	0	0	0
Storage Lanes	0	1	1	1	1	1
Taper Length (ft)	25	25	25	25	25	25
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30
Link Distance (ft)	1754	1754	378	378	136	136
Travel Time (s)	39.9	39.9	8.6	8.6	3.1	3.1
Confl. Peds. (#/hr)	5	5	5	5	8	1
Peak Hour Factor	0.79	0.79	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	9%	0%	9%	11%	0%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	430	0	255	239	28	629
Turn Type	NA	Prot	NA	Perm	pm+ov	1
Protected Phases	2	1	6	6	8	8
Permitted Phases	2	1	6	6	8	8
Detector Phase	2	1	6	6	8	8
Switch Phase	2	1	6	6	8	8
Minimum Initial (s)	6.0	10.0	10.0	10.0	6.0	10.0
Minimum Split (s)	24.0	15.0	24.0	24.0	15.0	15.0
Total Split (s)	37.0	39.0	76.0	24.0	39.0	39.0
Total Split (%)	37.0%	39.0%	76.0%	24.0%	39.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	None	C-Max	None	None	C-Max	C-Max
Recall Mode	0.91	0.32	0.17	0.17	0.69	0.69
v/c Ratio	0.91	0.32	0.17	0.17	0.69	0.69
Control Delay	58.2	17.6	3.0	41.7	15.4	15.4
Queue Delay	54.1	0.4	0.0	0.0	0.5	0.5
Total Delay	112.3	17.9	3.0	41.7	15.9	15.9
Queue Length 50th (ft)	253	77	7	17	181	181
Queue Length 95th (ft)	312	m208	m107	39	308	308
Internal Link Dist (ft)	1674	298	298	56	56	56
Turn Bay Length (ft)	100	100	100	100	100	100
Base Capacity (vph)	520	790	1443	335	913	913
Starvation Cap Reductn	0	197	0	0	0	0
Spillback Cap Reductn	191	0	0	0	0	66
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.43	0.17	0.08	0.74	0.74
Intersection Summary						
Area Type:	Other					
Cycle Length: 100						
Actuated Cycle Length: 100						
Offset: 65 (65%), Referenced to phase 1:WBL, Start of Yellow						
Natural Cycle: 75						
Control Type: Actuated-Coordinated						
m Volume for 95th percentile queue is metered by upstream signal.						

Splits and Phases: 1: Chili & West /Main



HCM Signalized Intersection Capacity Analysis
1: Chili & West /Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

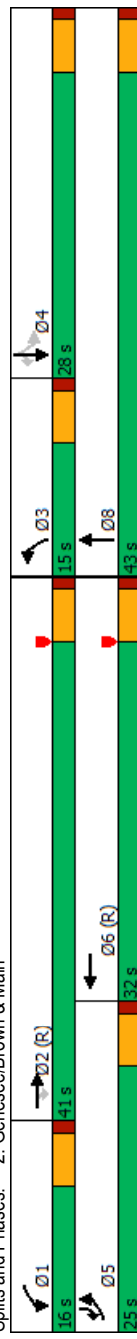
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (vph)	336	4	227	213	25	560
Future Volume (vph)	336	4	227	213	25	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	12	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	0.98	1.00
Frt	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1625	1546	1546	1655	1767	1445
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1625	1546	1546	1655	1767	1445
Peak-hour factor, PHF	0.79	0.79	0.89	0.89	0.89	0.89
Adj. Flow (vph)	425	5	255	239	28	629
RTOR Reduction (vph)	1	0	0	0	0	81
Lane Group Flow (vph)	429	0	255	239	28	548
Confl. Peds. (#/hr)	5	5	5	8	8	1
Heavy Vehicles (%)	9%	0%	9%	11%	0%	4%
Turn Type	NA	Prot	NA	Perm	pm-ov	
Protected Phases	2	1	6	1	8	
Permitted Phases						
Actuated Green, G (s)	29.1	49.1	83.2	6.8	55.9	
Effective Green, g (s)	29.1	49.1	83.2	6.8	55.9	
Actuated g/C Ratio	0.29	0.49	0.83	0.07	0.56	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	3.0	2.0	
Lane Grp Cap (vph)	472	759	1376	120	880	
v/s Ratio Prot	c0.26	0.16	0.14	0.02	0.07	
v/s Ratio Perm						
v/c Ratio	0.91	0.34	0.17	0.23	0.62	
Uniform Delay, d1	34.2	15.5	1.6	44.1	14.9	
Progression Factor	1.00	0.91	1.16	1.00	1.00	
Incremental Delay, d2	20.8	1.0	0.0	1.0	1.4	
Delay (s)	55.0	15.1	1.9	45.1	16.3	
Level of Service	D	B	A	D	B	
Approach Delay (s)	55.0		8.7	17.5		
Approach LOS	D		A	B		
Intersection Summary						
HCM 2000 Control Delay		25.0		HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio		0.76				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)	15.0	
Intersection Capacity Utilization		61.1%		ICU Level of Service	B	
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings
2: Genesee/Brown & Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134	
Future Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	15	10	
Storage Length (ft)	150	225	200	200	200	200	0	0	0	100	200	200	
Storage Lanes	1	1	1	1	1	0	1	1	0	1	1	1	
Taper Length (ft)	25	No	No	25	No	No	25	No	No	25	No	No	
Right Turn on Red													
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	378	313	313	313	313	313	355	355	355	307	307	307	
Travel Time (s)	8.6	7.1	7.1	7.1	7.1	7.1	8.1	8.1	8.1	7.0	7.0	7.0	
Confl. Peds. (#/hr)	2	8	8	8	8	2	2	2	1	1	1	1	
Peak Hour Factor	0.85	0.85	0.85	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	
Heavy Vehicles (%)	12%	3%	7%	9%	10%	0%	11%	8%	13%	0%	6%	13%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	172	588	246	164	242	0	149	355	0	67	264	146	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	NA	Perm	NA	pm+ov	NA	
Protected Phases	5	2	2	1	6	3	8	8	4	4	5	4	
Permitted Phases	5	2	2	1	6	3	8	8	4	4	5	4	
Detector Phase	5	2	2	1	6	3	8	8	4	4	5	4	
Switch Phase													
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	26.0	10.0	26.0	10.0	26.0	10.0	28.0	28.0	28.0	28.0	10.0	
Total Split (s)	25.0	41.0	41.0	16.0	32.0	15.0	43.0	28.0	28.0	28.0	28.0	25.0	
Total Split (%)	25.0%	41.0%	41.0%	16.0%	32.0%	15.0%	43.0%	28.0%	28.0%	28.0%	28.0%	25.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None	
Recall Mode	0.74	0.89	0.48	0.75	0.41	0.99	0.72	0.39	0.76	0.29	0.29	0.29	
v/c Ratio	0.74	0.89	0.48	0.75	0.41	0.99	0.72	0.39	0.76	0.29	0.29	0.29	
Control Delay	57.0	38.8	22.9	73.4	16.1	116.9	38.5	41.9	53.1	21.2	21.2	21.2	
Queue Delay	0.0	27.9	0.5	0.0	0.0	0.0	0.5	0.4	0.0	0.0	0.0	0.0	
Total Delay	57.0	66.7	23.4	73.4	16.1	116.9	39.0	42.3	53.1	21.2	21.2	21.2	
Queue Length 50th (ft)	112	333	94	92	114	96	197	38	161	63	63	63	
Queue Length 95th (ft)	m149	#521	m140	#246	172	#215	271	76	234	93	93	93	
Internal Link Dist (ft)	298	298	233	233	233	275	275	227	227	227	227	227	
Turn Bay Length (ft)	150	225	200	200	200	100	100	100	100	100	100	100	
Base Capacity (vph)	300	657	517	218	587	151	570	223	453	568	568	568	
Starvation Cap Reductn	0	95	63	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	39	25	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.57	1.05	0.54	0.75	0.41	0.99	0.67	0.34	0.58	0.26	0.26	0.26	
Intersection Summary													
Area Type:	Other												
Cycle Length:	100												
Actuated Cycle Length:	100												
Offset:	8 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow												
Natural Cycle:	90												
Control Type:	Actuated-Coordinated												
#	95th percentile volume exceeds capacity, queue may be longer.												
	Queue shown is maximum after two cycles.												
m	Volume for 95th percentile queue is metered by upstream signal.												

Splits and Phases: 2: Genesee/Brown & Main



HCM Signalized Intersection Capacity Analysis

2: Genesee/Brown & Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Future Volume (vph)	146	500	209	156	191	39	131	187	125	62	243	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	15	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	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	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97	1.00	1.00	0.94	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1504	1722	1354	1546	1589	1518	1518	1502	1682	1972	1334	1334
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.55	1.00	1.00	1.00
Satd. Flow (perm)	1504	1722	1354	1546	1589	1518	1518	1502	972	1972	1334	1334
Peak-hour factor, PHF	0.85	0.85	0.85	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92
Adj. Flow (vph)	172	588	246	164	201	41	149	212	142	67	264	146
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	172	588	246	164	242	0	149	355	0	67	264	146
Confl. Peds. (#/hr)	2		8	8		2		1		1		
Heavy Vehicles (%)	12%	3%	7%	9%	10%	0%	11%	8%	13%	0%	6%	13%
Turn Type	Prot	NA	Perm	Prot	NA	NA	Prot	NA	Perm	NA	pm+ov	5
Protected Phases	5	2		1	6		3	8		4		4
Permitted Phases			2									
Actuated Green, G (s)	15.4	38.3	38.3	14.1	37.0		10.0	32.6		17.6	17.6	33.0
Effective Green, g (s)	15.4	38.3	38.3	14.1	37.0		10.0	32.6		17.6	17.6	33.0
Actuated g/C Ratio	0.15	0.38	0.38	0.14	0.37		0.10	0.33		0.18	0.18	0.33
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		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	2.0
Lane Grp Cap (vph)	231	659	518	217	587		151	489		171	347	506
v/s Ratio Prot	c0.11	c0.34		0.11	0.15		c0.10	c0.24		0.13	0.04	
v/c Ratio Perm			0.18						0.07			0.07
Uniform Delay, d1	40.4	28.9	23.3	41.3	23.4		44.9	29.8		36.5	39.2	24.8
Progression Factor	1.10	0.84	0.84	1.26	0.53		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.2	11.8	2.0	12.1	2.1		68.5	4.5		0.5	8.6	0.1
Delay (s)	51.7	36.0	21.5	64.1	14.4		113.4	34.3		37.0	47.8	24.9
Level of Service	D	D	C	E	B		F	C		D	D	C
Approach Delay (s)		35.1			34.5			57.7			39.3	
Approach LOS		D			C			E			D	
Intersection Summary												
HCM 2000 Control Delay			40.6			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			73.4%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
200: Main & King

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	21	827	500	12	8	22	
Future Volume (vph)	21	827	500	12	8	22	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	15	15	
Storage Length (ft)	75			0	0	0	
Storage Lanes	1			0	1	0	
Taper Length (ft)	25			Yes	25	Yes	
Right Turn on Red							
Link Speed (mph)	30	30	30		30		
Link Distance (ft)	653	663			382		
Travel Time (s)		14.8	15.1		8.7		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	22	871	539	0	31	0	
Turn Type	Prot	NA	NA		Prot		
Protected Phases	3	1	1		2		
Permitted Phases							
Detector Phase	3	1	1		2		
Switch Phase							
Minimum Initial (s)	3.0	7.0	7.0		6.0		
Minimum Split (s)	8.0	25.0	25.0		25.0		
Total Split (s)	8.0	67.0	67.0		25.0		
Total Split (%)	8.0%	67.0%	67.0%		25.0%		
Yellow Time (s)	4.0	4.0	4.0		4.0		
All-Red Time (s)	1.0	1.0	1.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	5.0	5.0	5.0		5.0		
Lead/Lag	Lag	Lead	Lead				
Lead-Lag Optimize?							
Recall Mode	None	C-Max	C-Max		None		
v/c Ratio	0.42	0.54	0.34		0.22		
Control Delay	67.7	5.9	3.0		25.6		
Queue Delay	0.0	0.1	0.0		0.0		
Total Delay	67.7	6.0	3.0		25.6		
Queue Length 50th (ft)	14	294	59		5		
Queue Length 95th (ft)	m27	323	165		33		
Internal Link Dist (ft)		573	583		302		
Turn Bay Length (ft)	75						
Base Capacity (vph)	53	1611	1606		382		
Starvation Cap Reductn	0	139	0		0		
Spillback Cap Reductn	0	0	0		0		
Storage Cap Reductn	0	0	0		0		
Reduced v/c Ratio	0.42	0.59	0.34		0.08		
Intersection Summary							
Area Type:	Other						
Cycle Length: 100							
Actuated Cycle Length: 100							
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green							
Natural Cycle: 75							
Control Type: Actuated-Coordinated							
m Volume for 95th percentile queue is metered by upstream signal.							

Spills and Phases: 200: Main & King



HCM Signalized Intersection Capacity Analysis 200: Main & King

West Main Street Study
AM Alt 2 - Road Diet, protected lefts



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	21	827	500	12	8	22
Future Volume (vph)	21	827	500	12	8	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	15
Total Lost time (s)	5.0	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
Frt	1.00	1.00	1.00	1.00	0.90	0.90
Flt Protected	0.95	1.00	1.00	1.00	0.99	0.99
Satd. Flow (prot)	1770	1863	1857	1820	1820	1820
Flt Permitted	0.95	1.00	1.00	1.00	0.99	0.99
Satd. Flow (perm)	1770	1863	1857	1820	1820	1820
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	871	526	13	8	23
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	22	871	539	0	9	0
Turn Type	Prot	NA	NA	Prot	Prot	Prot
Protected Phases	3	1	1	2		
Permitted Phases						
Actuated Green, G (s)	1.2	79.5	79.5	4.3		
Effective Green, g (s)	1.2	79.5	79.5	4.3		
Actuated g/C Ratio	0.01	0.80	0.80	0.04		
Clearance Time (s)	5.0	5.0	5.0	5.0		
Vehicle Extension (s)	3.0	2.0	2.0	3.0		
Lane Grp Cap (vph)	21	1481	1476	78		
v/s Ratio Prot	c0.01	c0.47	0.29	c0.00		
v/s Ratio Perm						
v/c Ratio	1.05	0.59	0.36	0.12		
Uniform Delay, d1	49.4	3.9	3.0	46.0		
Progression Factor	0.97	1.14	0.86	1.00		
Incremental Delay, d2	203.3	1.6	0.6	0.7		
Delay (s)	251.3	6.1	3.2	46.7		
Level of Service	F	A	A	D		
Approach Delay (s)	12.1	3.2	46.7			
Approach LOS	B	A	D			
Intersection Summary						
HCM 2000 Control Delay		9.6		HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio		0.57				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)	15.0	
Intersection Capacity Utilization		56.9%		ICU Level of Service	B	
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings
201: McDonald's/Canal & Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Future Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	15	15	15
Storage Length (ft)	75	0	0	75	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	1	0	0	1	0	0	0	0	0
Taper Length (ft)	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes
Right Turn on Red												
Link Speed (mph)	30	30		30	30		30	30		30	30	30
Link Distance (ft)	663	663		1045	1045		291	291		397	397	397
Travel Time (s)	15.1	15.1		23.8	23.8		6.6	6.6		9.0	9.0	9.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	838	0	24	645	0	31	27	0	0	26	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	3	1		3	1		2	2		2	2	
Permitted Phases												
Detector Phase	3	1		3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	3.0	23.0		3.0	23.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	8.0	41.0		8.0	41.0		29.0	29.0		29.0	29.0	
Total Split (s)	11.0	60.0		11.0	60.0		29.0	29.0		29.0	29.0	
Total Split (%)	11.0%	60.0%		11.0%	60.0%		29.0%	29.0%		29.0%	29.0%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.5		2.0	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	6.0		5.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lead		Lag	Lead							
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
v/c Ratio	0.01	0.57		0.25	0.43		0.32	0.08		0.20	0.20	
Control Delay	53.0	7.1		34.5	4.0		51.9	0.5		36.5	36.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.0	7.1		34.5	4.0		51.9	0.5		36.5	36.5	
Queue Length 50th (ft)	1	37		15	61		19	0		11	11	
Queue Length 95th (ft)	m1	398		m22	130		48	0		36	36	
Internal Link Dist (ft)		583			965			211			317	
Turn Bay Length (ft)	75			75								
Base Capacity (vph)	106	1480		106	1484		302	538		383	383	
Starvation Cap Reductn	0	30		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.01	0.58		0.23	0.43		0.10	0.05		0.07	0.07	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 75 (75%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 80												
Control Type: Actuated-Coordinated												
m Volume for 95th percentile queue is metered by upstream signal.												

Spillts and Phases: 201: McDonald's/Canal & Main



HCM Signalized Intersection Capacity Analysis
201: McDonald's/Canal & Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

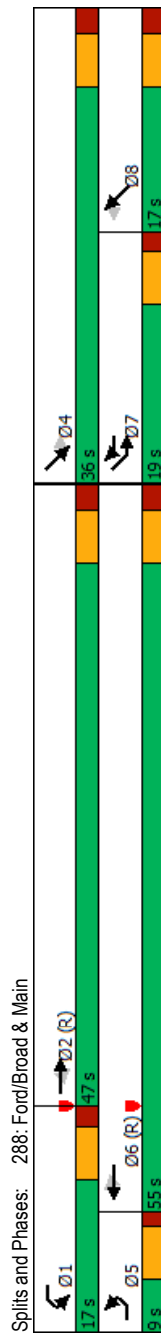
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Future Volume (vph)	1	756	40	23	594	19	29	0	26	13	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	15	15	15
Total Lost time (s)	5.0	6.0		5.0	6.0		5.5	5.5			5.5	
Lane Util. Factor	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	0.85			0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	1849		1770	1854		1652	1478			1912	
Flt Permitted	0.95	1.00		0.95	1.00		0.74	1.00			0.82	
Satd. Flow (perm)	1770	1849		1770	1854		1287	1478			1605	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	796	42	24	625	20	31	0	27	14	4	8
RTOR Reduction (vph)	0	1	0	0	1	0	0	25	0	0	7	0
Lane Group Flow (vph)	1	837	0	24	644	0	31	2	0	0	19	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	3	1		3	1		2	2		2		
Permitted Phases							2			2		
Actuated Green, G (s)	2.4	74.8		2.4	74.8		6.3	6.3		6.3		
Effective Green, g (s)	2.4	74.8		2.4	74.8		6.3	6.3		6.3		
Actuated g/C Ratio	0.02	0.75		0.02	0.75		0.06	0.06		0.06		
Clearance Time (s)	5.0	6.0		5.0	6.0		5.5	5.5		5.5		
Vehicle Extension (s)	3.0	2.0		3.0	2.0		2.0	2.0		2.0		
Lane Grp Cap (vph)	42	1383		42	1386		81	93		101		
v/s Ratio Prot	0.00	c0.45		c0.01	0.35		c0.02	0.00		0.01		
v/s Ratio Perm												
v/c Ratio	0.02	0.61		0.57	0.46		0.38	0.02		0.18		
Uniform Delay, d1	47.7	5.8		48.3	4.9		45.0	43.9		44.4		
Progression Factor	1.19	0.90		0.65	0.64		1.00	1.00		1.00		
Incremental Delay, d2	0.2	1.7		13.7	0.9		1.1	0.0		0.3		
Delay (s)	56.7	6.9		45.1	4.0		46.1	44.0		44.7		
Level of Service	E	A		D	A		D	D		D		
Approach Delay (s)		7.0			5.4			45.1		44.7		
Approach LOS		A			A			D		D		
Intersection Summary												
HCM 2000 Control Delay			8.3				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			59.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
288: Ford/Broad & Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Group													
Lane Configurations	←	→	→	←	←	←	←	←	←	←	←	←	
Traffic Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58	
Future Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	125	100	125	100	100	100	125	0	0	125	0	0	
Storage Lanes	1	1	1	1	1	1	1	0	0	1	1	0	
Taper Length (ft)	25			25			25			25			
Right Turn on Red		Yes		Yes		Yes		Yes			Yes		
Link Speed (mph)		30		30		30		30			30		
Link Distance (ft)		1045		417		417		1317			403		
Travel Time (s)		23.8		9.5		9.5		29.9			9.2		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Shared Lane Traffic (%)							48%						
Lane Group Flow (vph)	42	588	316	150	600	211	222	476	0	59	262	0	
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA		Perm	NA		
Protected Phases	5	2	2	1	6	7	7	4			8		
Permitted Phases			2			6	4				8		
Detector Phase	5	2	2	1	6	7	7	4			8		
Switch Phase													
Minimum Initial (s)	3.0	10.0	10.0	5.0	10.0	5.0	5.0	6.0		6.0	6.0		
Minimum Split (s)	8.0	35.0	35.0	12.0	35.0	12.0	12.0	32.0		12.0	12.0		
Total Split (s)	9.0	47.0	47.0	17.0	55.0	19.0	19.0	36.0		17.0	17.0		
Total Split (%)	9.0%	47.0%	47.0%	17.0%	55.0%	19.0%	19.0%	36.0%		17.0%	17.0%		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	2.0	2.0	1.5	2.0	1.5	1.5	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	-0.5	0.0	0.0	0.5	0.0		0.0	0.0		
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	5.5	6.0	6.0		6.0	6.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lag	Lag		
Lead-Lag Optimize?													
Recall Mode	None	C-Max	C-Max	None	C-Max	Max	Max	Max		Max	Max		
v/c Ratio	0.60	0.73	0.40	0.76	0.63	0.18	0.73	0.61		0.61	0.65		
Control Delay	82.9	30.2	9.3	67.1	22.3	2.3	44.5	32.3		70.6	44.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		
Total Delay	82.9	30.2	9.3	67.1	22.3	2.3	44.5	32.3		70.6	44.9		
Queue Length 50th (ft)	29	348	35	93	277	12	125	134		37	73		
Queue Length 95th (ft)	m#56	398	88	#184	399	34	#229	185		#99	116		
Internal Link Dist (ft)		965		337				1237			323		
Turn Bay Length (ft)	125	125	100	100	100	100	125			125			
Base Capacity (vph)	70	778	782	212	946	1156	303	775		96	406		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0		
Reduced v/c Ratio	0.60	0.73	0.40	0.71	0.63	0.18	0.73	0.61		0.61	0.65		

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 81 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	



HCM Signalized Intersection Capacity Analysis
288: Ford/Broad & Main

West Main Street Study
AM Alt 2 - Road Diet, protected lefts

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Future Volume (vph)	38	511	284	135	540	190	383	223	22	53	178	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	1.00	0.96	0.96	0.96
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1610	3294	1770	1770	3410	3410
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.33	0.60	0.47	1.00	0.47	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	553	2026	876	3410	876	3410
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	568	316	150	600	211	426	248	24	59	198	64
RTOR Reduction (vph)	0	0	120	0	0	54	0	4	0	0	31	0
Lane Group Flow (vph)	42	568	196	150	600	157	222	473	0	59	231	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6	7	7	4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	3.2	41.8	41.8	10.7	49.8	63.3	30.0	30.0		11.0	11.0	
Effective Green, g (s)	3.2	41.8	41.8	11.2	49.8	63.3	29.5	30.0		11.0	11.0	
Actuated g/C Ratio	0.03	0.42	0.42	0.11	0.50	0.63	0.29	0.30		0.11	0.11	
Clearance Time (s)	5.0	6.0	6.0	5.5	6.0	5.5	5.5	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	56	778	661	198	927	1002	300	778		96	375	
v/s Ratio Prot	0.02	c0.30		c0.08	0.32	0.02	c0.10	0.08		0.07	0.07	
v/s Ratio Perm			0.12			0.08	c0.12	0.10		0.07		
v/c Ratio	0.75	0.73	0.30	0.76	0.65	0.16	0.74	0.61		0.61	0.62	
Uniform Delay, d1	48.0	24.4	19.3	43.1	18.6	7.5	29.2	30.0		42.5	42.5	
Progression Factor	1.11	0.98	1.09	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	38.8	5.3	1.0	13.6	3.5	0.3	15.1	3.5		26.0	7.4	
Delay (s)	92.0	29.2	22.1	56.7	22.1	7.8	44.3	33.5		68.5	49.9	
Level of Service	F	C	C	E	C	A	D	C		E	D	
Approach Delay (s)		29.6			24.4			36.9			53.3	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			32.2			HCM 2000 Level of Service						
HCM 2000 Volume to Capacity ratio			0.77			C						
Actuated Cycle Length (s)			100.0			Sum of lost time (s)						
Intersection Capacity Utilization			72.3%			ICU Level of Service						
Analysis Period (min)			15			C						
Critical Lane Group												

Lanes, Volumes, Timings

1: Jefferson & Main

Bull's Head Urban Renewal TIS

PM 2024 Full Build

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16
Future Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	75		0	100		0	50		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes
Right Turn on Red												
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	325			653			1957			388		
Travel Time (s)	18		7	7		14.8	18		15	6		8.8
Confl. Peds. (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.87	0.87	0.87	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	3%	1%	3%	0%	7%	3%	7%	13%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	702	0	87	829	0	0	279	0	35	187	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	21.0	21.0		21.0	21.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		30.0	30.0		30.0	30.0	
Total Split (s)	70.0	70.0		70.0	70.0		30.0	30.0		30.0	30.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.5		6.5	6.5	
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.12	0.33		0.21	0.39		0.96	0.96		0.23	0.48	
Control Delay	8.0	6.7		9.0	9.0		78.9	78.9		35.5	37.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.0	6.7		9.0	9.0		78.9	78.9		35.5	37.1	
Queue Length 50th (ft)	2	19		21	121		162	162		18	100	
Queue Length 95th (ft)	24	117		40	138		#301	#301		46	165	
Internal Link Dist (ft)		245			573		1877	1877			308	
Turn Bay Length (ft)	75			100						100		
Base Capacity (vph)	358	2143		418	2125		306	306		160	409	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.33		0.21	0.39		0.91	0.91		0.22	0.46	
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	34 (34%), Referenced to phase 1:EBWB, Start of Green											
Natural Cycle:	70											
Control Type:	Actuated-Coordinated											
#	95th percentile volume exceeds capacity, queue may be longer.											
	Queue shown is maximum after two cycles.											
Splits and Phases:	1: Jefferson & Main											

HCM Signalized Intersection Capacity Analysis
1: Jefferson & Main

Bull's Head Urban Renewal TIS
PM 2024 Full Build

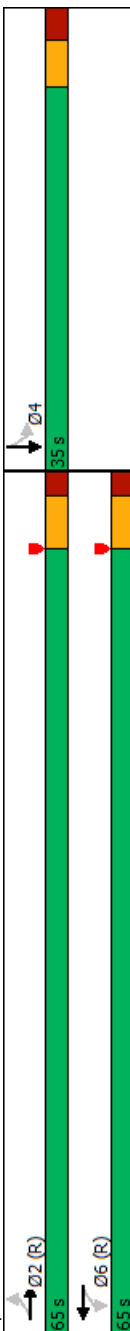
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16
Future Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	10	10
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	0.99	1.00	1.00	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	1.00	1.00	1.00	0.96	1.00	1.00	0.99	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.99	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1671	3287		1662	3261		1578		1485	1727		
Flt Permitted	0.31	1.00		0.37	1.00		0.77		0.44	1.00		
Satd. Flow (perm)	550	3287		642	3261		1234		681	1727		
Peak-hour factor, PHF	0.88	0.88	0.88	0.82	0.82	0.82	0.87	0.87	0.87	0.89	0.89	0.89
Adj. Flow (vph)	44	684	18	87	813	16	63	126	90	35	169	18
RTOR Reduction (vph)	0	2	0	0	1	0	0	17	0	0	4	0
Lane Group Flow (vph)	44	700	0	87	828	0	0	262	0	35	183	0
Confl. Peds. (#/hr)	18		7	7		18	15		6	6		15
Heavy Vehicles (%)	0%	2%	3%	1%	3%	0%	7%	3%	7%	13%	1%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	1	1		1			2			2		
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	65.2	65.2		65.2	65.2		22.3		22.3	22.3		
Effective Green, g (s)	65.2	65.2		65.2	65.2		22.3		22.3	22.3		
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.22		0.22	0.22		
Clearance Time (s)	6.0	6.0		6.0	6.0		6.5		6.5	6.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0		2.0	2.0		
Lane Grp Cap (vph)	358	2143		418	2126		275		151	385		
v/s Ratio Prot	0.21			c0.25						0.11		
v/c Ratio Perm	0.08	0.12	0.33	0.21	0.39		c0.21		0.05	0.23	0.48	
Uniform Delay, d1	6.6	7.7		7.0	8.1		38.3		31.8	33.8		
Progression Factor	0.99	0.80		1.00	1.00		1.00		1.00	1.00		
Incremental Delay, d2	0.7	0.4		1.1	0.5		40.9		0.3	0.3		
Delay (s)	7.2	6.5		8.1	8.7		79.3		32.1	34.1		
Level of Service	A	A		A	A		E		C	C		
Approach Delay (s)		6.6			8.6		79.3			33.8		
Approach LOS		A			A		E			C		
Intersection Summary												
HCM 2000 Control Delay			19.6			HCM 2000 Level of Service						
			0.53			B						
HCM 2000 Volume to Capacity ratio												
Actuated Cycle Length (s)			100.0			Sum of lost time (s)						
						12.5						
Intersection Capacity Utilization			92.7%			ICU Level of Service						
						F						
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: Henion/Rite Aid & Main

Bull's Head Urban Renewal TIS
PM 2024 Full Build

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Future Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0	50	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	1	0	0	0	0	0	0	0	0
Taper Length (ft)	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes
Right Turn on Red												
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	177	1167	1167	1167	1167	1167	322	322	169	169	3.8	3.8
Travel Time (s)	4.0	26.5	26.5	26.5	26.5	26.5	7.3	7.3	3.8	3.8	3.8	3.8
Confl. Peds. (#/hr)	20	19	19	19	19	20	10	10	19	19	10	10
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.72	0.72	0.72	0.89	0.89	0.89
Heavy Vehicles (%)	0%	3%	0%	4%	3%	0%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	653	0	94	822	0	0	0	0	0	81	0
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA	Perm	NA	NA	NA
Protected Phases	2	2	2	6	6	6	4	4	4	4	4	4
Permitted Phases	2	2	2	6	6	6	4	4	4	4	4	4
Detector Phase	2	2	2	6	6	6	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	25.0	25.0	25.0	25.0	25.0	25.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	65.0	65.0	65.0	65.0	65.0	65.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
v/c Ratio	0.07	0.46	0.18	0.18	0.59	0.59	0.32	0.32	0.32	0.32	0.32	0.32
Control Delay	3.5	4.8	2.1	2.1	6.6	6.6	29.3	29.3	29.3	29.3	29.3	29.3
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	5.1	2.1	2.1	6.6	6.6	29.3	29.3	29.3	29.3	29.3	29.3
Queue Length 50th (ft)	2	55	3	108	1087	1087	89	89	89	89	89	89
Queue Length 95th (ft)	m7	179	m11	m474	m474	m474	68	68	68	68	68	68
Internal Link Dist (ft)							242	242	242	242	242	242
Turn Bay Length (ft)	50	50	50	50	50	50	522	522	522	522	522	522
Base Capacity (vph)	426	1433	526	526	1398	1398	0	0	0	0	0	0
Starvation Cap Reductn	0	247	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.55	0.18	0.18	0.59	0.59	0.16	0.16	0.16	0.16	0.16	0.16
Intersection Summary												
Area Type:	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other
Cycle Length:	100	100	100	100	100	100	100	100	100	100	100	100
Actuated Cycle Length:	100	100	100	100	100	100	100	100	100	100	100	100
Offset:	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle:	75	75	75	75	75	75	75	75	75	75	75	75
Control Type:	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated	Actuated-Coordinated
m	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Henion/Rite Aid & Main



HCM Signalized Intersection Capacity Analysis
2: Henion/Rite Aid & Main

Bull's Head Urban Renewal TIS
PM 2024 Full Build

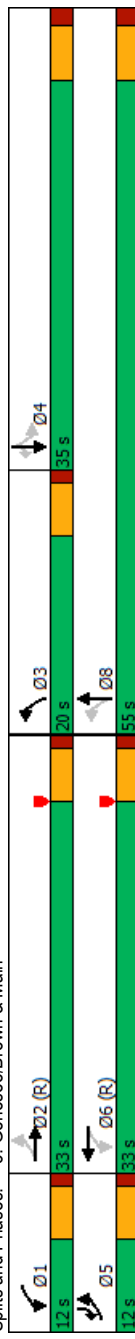
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Future Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0					6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00					1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00					0.99	
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00	1.00					0.99	
Frt	1.00	1.00	1.00	1.00	0.99	1.00					0.96	
Flt Protected	0.95	1.00		0.95	1.00						0.98	
Satd. Flow (prot)	1789	1836		1713	1791						1744	
Flt Permitted	0.29	1.00		0.37	1.00						0.98	
Satd. Flow (perm)	542	1836		673	1791						1744	
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.72	0.72	0.72	0.89	0.89	0.89
Adj. Flow (vph)	29	635	18	94	780	42	0	0	0	27	29	25
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	20	0
Lane Group Flow (vph)	29	653	0	94	821	0	0	0	0	0	61	0
Confl. Peds. (#/hr)	20		19	19		20	10		19	19		10
Heavy Vehicles (%)	0%	3%	0%	4%	3%	0%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)	75.6	75.6		75.6	75.6						12.4	
Effective Green, g (s)	75.6	75.6		75.6	75.6						12.4	
Actuated g/C Ratio	0.76	0.76		0.76	0.76						0.12	
Clearance Time (s)	6.0	6.0		6.0	6.0						6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)	409	1388		508	1353						216	
v/s Ratio Prot		0.36			60.46							
v/s Ratio Perm	0.05			0.14							0.03	
Uniform Delay, d1	0.07	0.47		0.19	0.61						0.28	
Progression Factor	3.1	4.6		3.5	5.5						39.8	
Incremental Delay, d2	0.58	0.63		0.24	0.63						1.00	
Delay (s)	0.3	0.9		0.7	1.9						0.7	
Level of Service	2.1	3.8		1.6	5.3						40.5	
Approach Delay (s)	A	A		A	A					D		
Approach LOS	A	3.7		4.9	A			0.0		40.5		
Intersection Summary		A			A			A		D		
HCM 2000 Control Delay			6.2			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			88.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
3: Genesee/Brown & Main

Bull's Head Urban Renewal TIS
PM 2024 Full Build

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩	↩↪	↩↪	↩↪	↩↪		↩	↩	↩	↩	↩	↩
Traffic Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234
Future Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	15	10
Storage Length (ft)	150	225	200	200	200	200	0	0	0	100	200	200
Storage Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Taper Length (ft)	25	25	No	25	25	No	25	25	No	25	25	No
Right Turn on Red												
Link Speed (mph)	30	30		30	30		30	30		30	30	
Link Distance (ft)	378	378		313	313		355	355		307	307	
Travel Time (s)	8.6	8.6		7.1	7.1		8.1	8.1		7.0	7.0	
Confl. Peds. (#/hr)	5	18	18	18	18	5	2	2	1	1	1	2
Peak Hour Factor	0.89	0.89	0.89	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93
Heavy Vehicles (%)	8%	3%	4%	6%	3%	0%	5%	4%	5%	0%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	697	0	197	757	0	291	490	0	70	297	252
Turn Type	pm+pt	NA	pm+pt	NA	NA	pm+pt	pm+pt	NA	NA	Perm	NA	pm+ov
Protected Phases	5	2		1	6		3	8		4	4	5
Permitted Phases	2	2		6	6		8	8		4	4	4
Detector Phase	5	2		1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.5		28.5	28.5	11.0
Total Split (s)	12.0	33.0		12.0	33.0		20.0	55.0		35.0	35.0	12.0
Total Split (%)	12.0%	33.0%		12.0%	33.0%		20.0%	55.0%		35.0%	35.0%	12.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.5		1.5	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.5		5.5	5.5	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
v/c Ratio	0.58	0.70		0.58	0.75		0.91	0.79		0.42	0.76	0.51
Control Delay	24.4	37.6		24.3	29.5		54.7	36.6		42.0	50.5	26.3
Queue Delay	0.0	0.5		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	24.4	38.1		24.3	29.5		54.7	36.6		42.0	50.5	26.3
Queue Length 50th (ft)	72	228		46	237		134	269		40	181	114
Queue Length 95th (ft)	m#140	296		#124	#287		#240	355		78	251	178
Internal Link Dist (ft)		298			233			275			227	
Turn Bay Length (ft)	150			200						100		200
Base Capacity (vph)	322	996		339	1007		327	789		253	598	491
Starvation Cap Reductn	0	72		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	7		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.58	0.75		0.58	0.76		0.89	0.62		0.28	0.50	0.51
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	20 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											
#	95th percentile volume exceeds capacity, queue may be longer.											
	Queue shown is maximum after two cycles.											
m	Volume for 95th percentile queue is metered by upstream signal.											

Splits and Phases: 3: Genesee/Brown & Main

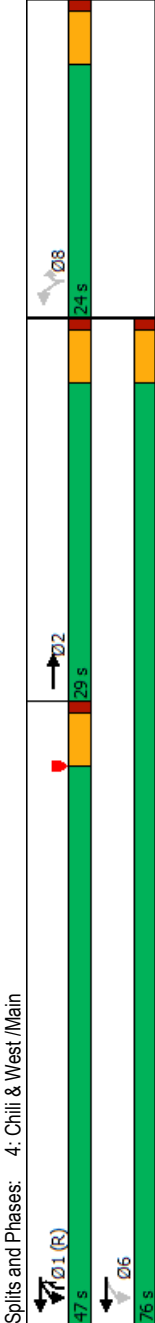


HCM Signalized Intersection Capacity Analysis 3: Genesee/Brown & Main

Bull's Head Urban Renewal TIS PM 2024 Full Build

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234
Future Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	15	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.94	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1559	3084	1586	3194	1604	1604	1594	1684	2029	1451	1451	1451
Flt Permitted	0.19	1.00	0.24	1.00	0.24	1.00	0.21	1.00	0.48	1.00	1.00	1.00
Satd. Flow (perm)	316	3084	407	3194	356	1594	356	1594	859	2029	1451	1451
Peak-hour factor, PHF	0.89	0.89	0.89	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	187	510	187	197	639	118	291	303	187	70	297	252
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	187	697	0	197	757	0	291	490	0	70	297	252
Confl. Peds. (#/hr)	5	18	18	18	5	5	2	1	1	1	2	2
Heavy Vehicles (%)	8%	3%	4%	6%	3%	0%	5%	4%	5%	0%	3%	3%
Turn Type	pm+pt	NA	NA	pm+pt	NA	NA	pm+pt	NA	Perm	NA	NA	pm+ov
Protected Phases	5	2	2	1	6	3	8	8	4	4	5	4
Permitted Phases	2	46.3	32.2	44.9	31.5	38.9	38.9	38.9	19.3	19.3	33.4	33.4
Actuated Green, G (s)	46.3	32.2	32.2	44.9	31.5	38.9	38.9	38.9	19.3	19.3	33.4	33.4
Effective Green, g (s)	0.46	0.32	0.45	0.32	0.45	0.32	0.39	0.39	0.19	0.19	0.33	0.33
Actuated g/C Ratio	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	5.0
Clearance Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Vehicle Extension (s)	321	993	340	1006	320	620	165	391	484	0.15	0.07	0.10
Lane Grp Cap (vph)	c0.08	0.23	0.08	c0.24	c0.13	0.31	0.08	0.08	0.10	0.08	0.10	0.10
v/s Ratio Prot	0.19	0.58	0.70	0.58	0.75	0.91	0.79	0.42	0.76	0.52	0.52	0.52
v/c Ratio	18.1	29.7	18.3	30.8	24.5	27.0	35.5	38.2	26.8	1.00	1.00	1.00
Uniform Delay, d1	1.04	1.09	1.05	0.76	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.4	3.5	1.3	4.7	27.6	6.4	36.1	45.5	27.3	7.4	0.5	0.5
Incremental Delay, d2	20.2	35.9	20.5	28.1	52.1	33.3	36.1	45.5	27.3	7.4	0.5	0.5
Delay (s)	C	D	C	C	C	D	D	C	D	D	D	C
Level of Service	C	D	C	C	C	D	D	C	D	D	D	C
Approach Delay (s)	32.6	26.5	26.5	40.3	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Approach LOS	C	C	C	D	D	D	D	D	D	D	D	D
Intersection Summary												
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service										
HCM 2000 Volume to Capacity ratio	0.82	C										
Actuated Cycle Length (s)	100.0	Sum of lost time (s)										
Intersection Capacity Utilization	78.1%	ICU Level of Service										
Analysis Period (min)	15	D										
Critical Lane Group												

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø6
Lane Configurations	↰	↱	↰	↱	↰	↱	
Traffic Volume (vph)	283	3	567	458	25	489	
Future Volume (vph)	283	3	567	458	25	489	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	10	10	11	12	10	
Storage Length (ft)	200	0	0	0	0	0	
Storage Lanes	0	0	1	1	1	1	
Taper Length (ft)	Yes						25
Right Turn on Red							Yes
Link Speed (mph)	30					30	
Link Distance (ft)	1754					378	136
Travel Time (s)	39.9					8.6	3.1
Confl. Peds. (#/hr)	17		17	19			
Peak Hour Factor	0.96	0.96	0.95	0.95	0.89	0.89	
Heavy Vehicles (%)	3%	0%	3%	7%	2%	6%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	298	0	597	482	28	549	
Turn Type	NA	custom	NA	Perm	pm+ov		6
Protected Phases	2	1	16				
Permitted Phases	6		6	8	8	1	
Detector Phase	2	1	6	8	1		
Switch Phase							
Minimum Initial (s)	6.0	10.0		6.0		10.0	10.0
Minimum Split (s)	24.0	15.0		24.0		15.0	24.0
Total Split (s)	29.0	47.0		24.0		47.0	76.0
Total Split (%)	29.0%	47.0%		24.0%		47.0%	76%
Yellow Time (s)	4.0	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	
Total Lost Time (s)	5.0	5.0		5.0		5.0	
Lead/Lag	Lag	Lead		Lead			
Lead-Lag Optimize?							
Recall Mode	None	C-Max		None		C-Max	None
v/c Ratio	0.84	0.56		0.32		0.18	0.53
Control Delay	51.8	8.0		2.8		41.9	7.2
Queue Delay	0.0	0.3		0.4		0.0	0.2
Total Delay	51.8	8.3		3.2		41.9	7.4
Queue Length 50th (ft)	187	118		64		17	96
Queue Length 95th (ft)	#190	m173		m95		39	181
Internal Link Dist (ft)	1674			298		56	
Turn Bay Length (ft)							
Base Capacity (vph)	412	1071		1496		319	1042
Starvation Cap Reductn	0	123		546		0	0
Spillback Cap Reductn	0	0		0		0	74
Storage Cap Reductn	0	0		0		0	0
Reduced v/c Ratio	0.72	0.63		0.51		0.09	0.57
Intersection Summary							
Area Type:		Other					
Cycle Length: 100							
Actuated Cycle Length: 100							
Offset: 28 (28%), Referenced to phase 1:WBTL, Start of Yellow							
Natural Cycle: 75							
Control Type: Actuated-Coordinated							
# 95th percentile volume exceeds capacity, queue may be longer.							
Queue shown is maximum after two cycles.							
Volume for 95th percentile queue is metered by upstream signal.							





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1 ^L	1 ^R	1 ^L	1 ^R	1 ^L	1 ^R
Traffic Volume (vph)	283	3	567	458	25	489
Future Volume (vph)	283	3	567	458	25	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	12	10
Total Lost time (s)	5.0	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
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1719	1630	1717	1681	1422	
Flt Permitted	1.00	0.22	1.00	0.95	1.00	
Satd. Flow (perm)	1719	382	1717	1681	1422	
Peak-hour factor, PHF	0.96	0.96	0.95	0.95	0.89	0.89
Adj. Flow (vph)	295	3	597	482	28	549
RTOR Reduction (vph)	0	0	0	0	0	64
Lane Group Flow (vph)	298	0	597	482	28	485
Confl. Peds. (#/hr)	17	17			19	
Heavy Vehicles (%)	3%	0%	3%	7%	2%	6%
Turn Type	NA	custom	NA	NA	Perm	pm-ov
Protected Phases	2	1	16		1	
Permitted Phases		6		8	8	
Actuated Green, G (s)	20.6	83.2	83.2	6.8	64.4	
Effective Green, g (s)	20.6	83.2	83.2	6.8	64.4	
Actuated g/C Ratio	0.21	0.83	0.83	0.07	0.64	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	354	1036	1428	114	986	
v/s Ratio Prot	c0.17	c0.33	0.28		c0.28	
v/s Ratio Perm		0.15		0.02	0.06	
v/c Ratio	0.84	0.58	0.34	0.25	0.49	
Uniform Delay, d1	38.1	7.4	2.0	44.2	9.3	
Progression Factor	0.81	0.74	0.87	1.00	1.00	
Incremental Delay, d2	15.5	0.3	0.0	1.1	0.4	
Delay (s)	46.4	5.8	1.7	45.3	9.7	
Level of Service	D	A	A	D	A	
Approach Delay (s)	46.4		4.0	11.4		
Approach LOS	D		A	B		
Intersection Summary						
HCM 2000 Control Delay		12.6	HCM 2000 Level of Service			
HCM 2000 Volume to Capacity ratio		0.65	B			
Actuated Cycle Length (s)		100.0	Sum of lost time (s)			
Intersection Capacity Utilization		64.3%	ICU Level of Service			
Analysis Period (min)		15	C			
c Critical Lane Group						

Lane Group													
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations													
82	68	17	11	49	15	13	197	9	26	225	57		
82	68	17	11	49	15	13	197	9	26	225	57		
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
14	14	14	14	14	14	15	15	15	12	12	12		
Right Turn on Red													
	30	Yes		30	Yes		30	Yes		30	Yes		
Link Speed (mph)													
	677			1774			247			405			
Travel Time (s)													
	15.4			40.3			5.6			9.2			
Conf. Peds. (#/hr)													
2	4	4	4		2	2		5	5		2		
Peak Hour Factor													
0.78	0.78	0.78	0.86	0.86	0.86	0.84	0.84	0.84	0.86	0.86	0.86		
Heavy Vehicles (%)													
11%	9%	12%	9%	4%	7%	8%	6%	0%	0%	4%	7%		
Shared Lane Traffic (%)													
Lane Group Flow (vph)													
0	214	0	0	87	0	0	261	0	0	358	0		
Turn Type													
Perm	NA		Perm	NA		Perm	NA		Perm	NA			
Protected Phases													
4	4		4	4		2	2		2	2			
Permitted Phases													
4	4	4	4	4	4	2	2	2	2	2	2		
Detector Phase													
4	4	4	4	4	4	2	2	2	2	2	2		
Switch Phase													
Minimum Initial (s)													
7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0			
Minimum Split (s)													
26.0	26.0		26.0	26.0		24.0	24.0		24.0	24.0			
Total Split (s)													
36.0	36.0		36.0	36.0		36.0	36.0		36.0	36.0			
Total Split (%)													
50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%			
Yellow Time (s)													
4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0			
All-Red Time (s)													
2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0			
Lost Time Adjust (s)													
-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0			
Total Lost Time (s)													
3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0			
Lead/Lag													
Lead-Lag Optimize?													
Recall Mode													
None	None		None	None		Min	Min		Min	Min			
v/c Ratio													
0.39	0.39		0.13	0.13		0.28	0.28		0.42	0.42			
Control Delay													
12.2	12.2		8.5	8.5		8.1	8.1		9.2	9.2			
Queue Delay													
0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0			
Total Delay													
12.2	12.2		8.5	8.5		8.1	8.1		9.2	9.2			
Queue Length 50th (ft)													
29	29		9	9		30	30		43	43			
Queue Length 95th (ft)													
76	76		36	36		80	80		115	115			
Internal Link Dist (ft)													
597	597		1694	1694		167	167		325	325			
Turn Bay Length (ft)													
Base Capacity (vph)													
1161	1161		1379	1379		1491	1491		1335	1335			
Starvation Cap Reductn													
0	0		0	0		0	0		0	0			
Spillback Cap Reductn													
0	0		0	0		0	0		0	0			
Storage Cap Reductn													
0	0		0	0		0	0		0	0			
Reduced v/c Ratio													
0.18	0.18		0.06	0.06		0.18	0.18		0.27	0.27			
Intersection Summary													
Area Type: Other													
Cycle Length: 72													
Actuated													

HCM Signalized Intersection Capacity Analysis
6: Child & Maple

Bull's Head Urban Renewal TIS
PM 2024 Full Build

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	82	68	17	11	49	15	13	197	9	26	225	57
Future Volume (vph)	82	68	17	11	49	15	13	197	9	26	225	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	14	14	14	14	14	15	15	15	12	12	12
Total Lost time (s)	3.0				3.0			3.0			3.0	
Lane Util. Factor	1.00				1.00			1.00			1.00	
Flrb, ped/bikes	1.00				1.00			1.00			1.00	
Flpb, ped/bikes	1.00				1.00			1.00			1.00	
Flt	0.99				0.97			0.99			0.98	
Flt Protected	0.98				0.99			1.00			1.00	
Satd. Flow (prot)	1763				1851			1955			1762	
Flt Permitted	0.82				0.94			0.97			0.96	
Satd. Flow (perm)	1484				1760			1908			1703	
Peak-hour factor, PHF	0.78	0.78	0.78	0.86	0.86	0.86	0.84	0.84	0.84	0.86	0.86	0.86
Adj. Flow (vph)	105	87	22	13	57	17	15	235	11	30	262	66
RTOR Reduction (vph)	0	7	0	0	11	0	0	2	0	0	11	0
Lane Group Flow (vph)	0	207	0	0	76	0	0	259	0	0	347	0
Confl. Peds. (#/hr)	2		4	4		2	2		5	5		2
Heavy Vehicles (%)	11%	9%	12%	9%	4%	7%	8%	6%	0%	0%	4%	7%
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA
Protected Phases	4	4		4			2			2		
Permitted Phases												
Actuated Green, G (s)	12.7			12.7			18.5			18.5		
Effective Green, g (s)	15.7			15.7			21.5			21.5		
Actuated g/C Ratio	0.36			0.36			0.50			0.50		
Clearance Time (s)	6.0			6.0			6.0			6.0		
Vehicle Extension (s)	4.0			4.0			4.0			4.0		
Lane Grp Cap (vph)	539			639			949			847		
v/s Ratio Prot												
v/s Ratio Perm	c0.14			0.04			0.14			c0.20		
v/c Ratio	0.38			0.12			0.27			0.41		
Uniform Delay, d1	10.2			9.1			6.3			6.8		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	0.6			0.1			0.2			0.4		
Delay (s)	10.8			9.3			6.5			7.3		
Level of Service	B			A			A			A		
Approach Delay (s)	10.8			9.3			6.5			7.3		
Approach LOS	B			A			A			A		
Intersection Summary												
HCM 2000 Control Delay	8.1		HCM 2000 Level of Service		A							
HCM 2000 Volume to Capacity ratio	0.40											
Actuated Cycle Length (s)	43.2		Sum of lost time (s)		6.0							
Intersection Capacity Utilization	46.4%		ICU Level of Service		A							
Analysis Period (min)	15											
Critical Lane Group												

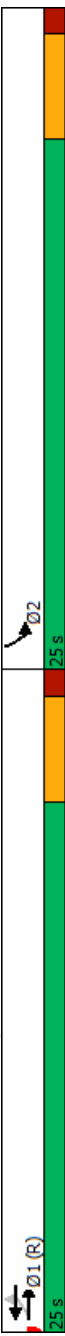
Lanes, Volumes, Timings
200: Main & King

Baseline



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	719	904	32	20	45
Future Volume (vph)	41	719	904	32	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Right Turn on Red			Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30
Link Distance (ft)	653	663	382	8.7		
Travel Time (s)	14.8	15.1	0.95	0.95	0.95	0.95
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	800	986	0	68	0
Turn Type	Perm	NA	NA	Prot	Prot	
Protected Phases		1	1	2	2	
Permitted Phases	1					
Detector Phase	1	1	1	2	2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	6.0		
Minimum Split (s)	25.0	25.0	25.0	25.0		
Total Split (s)	25.0	25.0	25.0	25.0		
Total Split (%)	50.0%	50.0%	50.0%	50.0%		
Yellow Time (s)	4.0	4.0	4.0	4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	5.0	5.0	5.0		
Lead/Lag	Lead	Lead	Lead	Lag		
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None		
v/c Ratio	0.33	0.35	0.35	0.24		
Control Delay	3.1	3.7	3.7	12.1		
Queue Delay	0.0	0.0	0.0	0.0		
Total Delay	3.1	3.7	3.7	12.1		
Queue Length 50th (ft)		40	190	6		
Queue Length 95th (ft)		73	149	32		
Internal Link Dist (ft)		573	583	302		
Turn Bay Length (ft)						
Base Capacity (vph)	2440	2787		758		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reduced v/c Ratio	0.33	0.35		0.09		
Intersection Summary						
Area Type:	Other					
Cycle Length: 50						
Actuated Cycle Length: 50						
Offset: 27 (54%), Referenced to phase 1:EBWB, Start of Green						
Natural Cycle: 50						
Control Type: Actuated-Coordinated						

Splits and Phases: 200: Main & King



HCM Signalized Intersection Capacity Analysis 200: Main & King

Baseline



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	719	904	32	20	45
Future Volume (vph)	41	719	904	32	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	15
Total Lost time (s)		5.0	5.0		5.0	
Lane Util. Factor		0.95	0.95		1.00	
Frt		1.00	0.99		0.91	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3530	3521		1830	
Flt Permitted		0.87	1.00		0.98	
Satd. Flow (perm)		3088	3521		1830	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	43	757	952	34	21	47
RTOR Reduction (vph)	0	0	2	0	40	0
Lane Group Flow (vph)	0	800	984	0	28	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases	1					
Actuated Green, G (s)		35.5	35.5		4.5	
Effective Green, g (s)		35.5	35.5		4.5	
Actuated g/C Ratio		0.71	0.71		0.09	
Clearance Time (s)		5.0	5.0		5.0	
Vehicle Extension (s)		2.0	2.0		3.0	
Lane Grp Cap (vph)		2192	2499		164	
v/s Ratio Prot		c0.28			c0.02	
v/s Ratio Perm		0.26				
v/c Ratio		0.36	0.39		0.17	
Uniform Delay, d1		2.8	2.9		21.0	
Progression Factor		0.93	1.11		1.00	
Incremental Delay, d2		0.5	0.4		0.5	
Delay (s)		3.1	3.7		21.5	
Level of Service		A	A		C	
Approach Delay (s)		3.1	3.7		21.5	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay		4.1			HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.37				
Actuated Cycle Length (s)		50.0			Sum of lost time (s)	10.0
Intersection Capacity Utilization		63.8%			ICU Level of Service	B
Analysis Period (min)		15				
c Critical Lane Group						

Systempm.syn

Synchro 10 Report
Page 2

Lanes, Volumes, Timings
201: McDonald's/Canal & Main

Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Future Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	15	15	15
Right Turn on Red	Yes											
Link Speed (mph)	30											
Link Distance (ft)	663											
Travel Time (s)	15.1											
Peak Hour Factor	0.95											
Shared Lane Traffic (%)	0.95											
Lane Group Flow (vph)	0	895	0	0	978	0	31	33	0	0	77	0
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA	Perm	NA	NA	0
Protected Phases	1											
Permitted Phases	1											
Detector Phase	1	1	1	1	1	1	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	23.0	23.0		23.0	23.0		6.0	6.0		6.0		6.0
Minimum Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0		29.0
Total Split (s)	71.0	71.0		71.0	71.0		29.0	29.0		29.0		29.0
Total Split (%)	71.0%	71.0%		71.0%	71.0%		29.0%	29.0%		29.0%		29.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5		5.5
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag		Lag
Lead-Lag Optimize?												
Recall Mode	C-Max											
v/c Ratio	0.32	C-Max		C-Max	C-Max		None	None		None		None
Control Delay	1.9	0.32		7.4	0.35		0.31	0.23		0.48		0.48
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Delay	1.9	0.32		7.4	0.35		0.31	0.23		0.48		0.48
Queue Length 50th (ft)	43	190		190	190		19	1		22		22
Queue Length 95th (ft)	90	227		227	227		47	29		66		66
Internal Link Dist (ft)	583	965		965	965		211	211		317		317
Turn Bay Length (ft)												
Base Capacity (vph)	2802	2755		2755	2755		305	373		409		409
Starvation Cap Reductn	0	0		0	0		0	0		0		0
Spillback Cap Reductn	0	0		0	0		0	0		0		0
Storage Cap Reductn	0	0		0	0		0	0		0		0
Reduced v/c Ratio	0.32	0.35		0.35	0.35		0.10	0.09		0.19		0.19
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 5 (5%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 70												
Control Type: Actuated-Coordinated												
Splits and Phases: 201: McDonald's/Canal & Main												
 Ø1 (R)  Ø1  Ø2 71 s 29 s 29 s												

HCM Signalized Intersection Capacity Analysis 201: McDonald's/Canal & Main

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4P			4P		5	1P			4P	
Traffic Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Future Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	15	15	15
Total Lost time (s)	6.0				6.0		5.5	5.5			5.5	
Lane Util. Factor	0.95				0.95		1.00	1.00			1.00	
Frt	0.99				1.00		1.00	0.85			0.93	
Flt Protected	1.00				1.00		0.95	1.00			0.98	
Satd. Flow (prot)	3510				3531		1652	1486			1862	
Flt Permitted	0.95				0.92		0.75	1.00			0.85	
Satd. Flow (perm)	3322				3265		1300	1486			1609	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	840	47	21	948	9	31	1	32	33	3	41
RTOR Reduction (vph)	0	2	0	0	0	0	0	30	0	0	38	0
Lane Group Flow (vph)	0	893	0	0	978	0	31	3	0	0	39	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1			1				2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	82.0			82.0			6.5	6.5			6.5	
Effective Green, g (s)	82.0			82.0			6.5	6.5			6.5	
Actuated g/C Ratio	0.82			0.82			0.06	0.06			0.06	
Clearance Time (s)	6.0			6.0			5.5	5.5			5.5	
Vehicle Extension (s)	2.0			2.0			2.0	2.0			2.0	
Lane Grp Cap (vph)	2724			2677			84	96			104	
v/s Ratio Prot								0.00				
v/s Ratio Perm	0.27			c0.30			0.02				c0.02	
v/c Ratio	0.33			0.37			0.37	0.03			0.37	
Uniform Delay, d1	2.2			2.3			44.8	43.8			44.8	
Progression Factor	0.68			2.83			1.00	1.00			1.00	
Incremental Delay, d2	0.3			0.3			1.0	0.0			0.8	
Delay (s)	1.8			6.9			45.8	43.9			45.6	
Level of Service	A			A			D	D			D	
Approach Delay (s)	1.8			6.9			44.8				45.6	
Approach LOS	A			A			D	D			D	
Intersection Summary												
HCM 2000 Control Delay			7.3			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			11.5			
Intersection Capacity Utilization			60.0%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

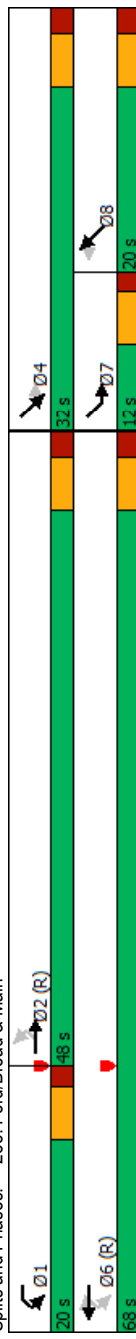
Lanes, Volumes, Timings
288: Ford/Broad & Main

Baseline

	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Future Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0	0	100	100	100	125	0	0	125	0	0
Storage Lanes	1	0	0	1	1	1	1	0	0	1	0	0
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes
Right Turn on Red		30		30		30		30		30		30
Link Speed (mph)	1045			417				1317				403
Link Distance (ft)	23.8			9.5				29.9				9.2
Travel Time (s)												
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	125	889	0	350	1248	896	107	298	0	74	342	0
Turn Type	Perm	NA	pm+pt	NA	pm+pt	Perm	pm+pt	NA	Perm	NA	NA	NA
Protected Phases	2	2	1	6	6	6	7	4	4	8	8	8
Permitted Phases	2	2	2	1	6	6	4	4	4	8	8	8
Detector Phase	2	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	5.0	6.0		6.0		6.0
Minimum Split (s)	35.0	35.0		12.0	35.0	35.0	12.0	32.0		12.0		12.0
Total Split (s)	48.0	48.0		20.0	68.0	68.0	12.0	32.0		20.0		20.0
Total Split (%)	48.0%	48.0%		20.0%	68.0%	68.0%	12.0%	32.0%		20.0%		20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.5	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.70	0.58	0.85	0.85	0.57	0.79	0.52	0.36	0.51	0.69	0.51	0.69
Control Delay	46.1	15.6	33.2	33.2	13.5	14.2	39.3	30.7	53.0	46.5	53.0	46.5
Queue Delay	0.0	0.0	0.0	0.0	0.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	15.6	33.2	33.2	14.4	15.6	39.3	30.7	53.0	46.5	53.0	46.5
Queue Length 50th (ft)	77	214	128	236	351	59	82	44	104	104	104	104
Queue Length 95th (ft)	#89	181	m#209	262	272	109	122	92	153	153	153	153
Internal Link Dist (ft)	965		337				1237					323
Turn Bay Length (ft)	125		100		100		125			125		
Base Capacity (vph)	179	1537	427	2194	1131	204	836		146	499		
Starvation Cap Reductn	0	0	0	608	97	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.58	0.82	0.79	0.87	0.52	0.36	0.51	0.69	0.51	0.69	0.69

Intersection Summary
Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 57 (57%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 288: Ford/Broad & Main



HCM Signalized Intersection Capacity Analysis

288: Ford/Broad & Main

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Future Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		5.5	6.0	6.0	5.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	0.91	0.91		1.00	0.95	
Frt	1.00	0.92		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3256		1770	3539	1583	1610	3343		1770	3454	
Flt Permitted	0.22	1.00		0.19	1.00	1.00	0.29	0.94		0.56	1.00	
Satd. Flow (perm)	417	3256		356	3539	1583	496	3147		1048	3454	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	125	415	474	350	1248	896	119	262	24	74	287	55
RTOR Reduction (vph)	0	136	0	0	0	150	0	6	0	0	15	0
Lane Group Flow (vph)	125	753	0	350	1248	746	107	292	0	74	327	0
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	NA	NA
Protected Phases	2			1	6		7	4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	43.0	43.0		62.0	62.0	62.0	26.0	26.0		14.0	14.0	
Effective Green, g (s)	43.0	43.0		62.0	62.0	62.0	26.0	26.0		14.0	14.0	
Actuated g/C Ratio	0.43	0.43		0.62	0.62	0.62	0.26	0.26		0.14	0.14	
Clearance Time (s)	6.0	6.0		5.5	6.0	6.0	5.5	6.0		6.0	6.0	
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)	179	1400		411	2194	981	201	830		146	483	
v/s Ratio Prot	0.23			0.11	0.35		c0.03	0.02		c0.09		
v/s Ratio Perm	0.30			c0.41		c0.47	0.10	0.07		0.07		
v/c Ratio	0.70	0.54		0.85	0.57	0.76	0.53	0.35		0.51	0.68	
Uniform Delay, d1	23.2	21.1		13.6	11.2	13.7	29.8	30.1		39.8	40.8	
Progression Factor	0.96	0.90		1.40	1.12	1.22	1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.8	1.4		12.1	0.8	4.4	9.7	1.2		12.0	7.4	
Delay (s)	42.1	20.4		31.2	13.3	21.0	39.5	31.3		51.8	48.2	
Level of Service	D	C		C	B	C	D	C		D	D	
Approach Delay (s)		23.1			18.6			33.5			48.9	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			23.9			HCM 2000 Level of Service						
HCM 2000 Volume to Capacity ratio			0.84			C						
Actuated Cycle Length (s)			100.0			Sum of lost time (s)						
Intersection Capacity Utilization			79.0%			ICU Level of Service						
Analysis Period (min)			15			D						
Critical Lane Group												

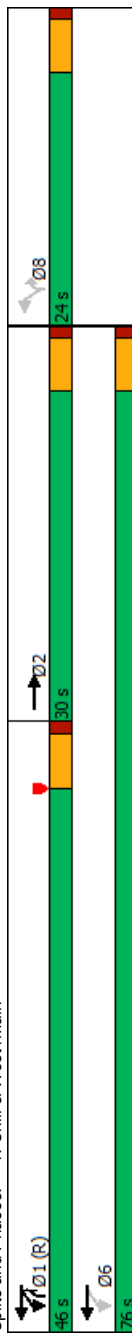
Lanes, Volumes, Timings
1: Chili & West /Main

West Main Street Study
PM Alt 1 - Road Diet



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø6
Lane Configurations	↩	↩	↩	↩	↩	↩	
Traffic Volume (vph)	283	3	567	458	25	489	
Future Volume (vph)	283	3	567	458	25	489	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	10	10	11	12	10	
Storage Length (ft)		200	100		0	0	
Storage Lanes		0	1		1	1	
Taper Length (ft)			25		25		Yes
Right Turn on Red		Yes					
Link Speed (mph)	30		30	30	30		
Link Distance (ft)	1754		378	136			
Travel Time (s)	39.9		8.6	3.1			
Confl. Peds. (#/hr)		17	17		19		
Peak Hour Factor	0.96	0.96	0.95	0.95	0.89	0.89	
Heavy Vehicles (%)	3%	0%	3%	7%	2%	6%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	298	0	597	482	28	549	
Turn Type	NA	custom	NA	Perm	pm+ov		
Protected Phases	2	1	16		1	6	
Permitted Phases							
Detector Phase	2	6	1	6	8	8	
Switch Phase							
Minimum Initial (s)	6.0		10.0		6.0	10.0	10.0
Minimum Split (s)	24.0		15.0		24.0	15.0	24.0
Total Split (s)	30.0		46.0		24.0	46.0	76.0
Total Split (%)	30.0%		46.0%		24.0%	46.0%	76%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	
Total Lost Time (s)	5.0		5.0		5.0	5.0	
Lead/Lag	Lag	Lead				Lead	
Lead-Lag Optimize?							
Recall Mode	None		C-Max		None	C-Max	None
v/c Ratio	0.84		0.56		0.32	0.18	0.53
Control Delay	50.4		5.6		1.9	41.9	7.1
Queue Delay	0.7		1.3		1.0	0.0	6.1
Total Delay	51.1		6.8		2.9	41.9	13.3
Queue Length 50th (ft)	188		70		40	17	90
Queue Length 95th (ft)	179		m40		m32	39	181
Internal Link Dist (ft)	1674				298	56	
Turn Bay Length (ft)			100				
Base Capacity (vph)	429		1070		1496	319	1044
Starvation Cap Reductn	0		265		720	0	0
Spillback Cap Reductn	21		0		0	0	432
Storage Cap Reductn	0		0		0	0	0
Reduced v/c Ratio	0.73		0.74		0.62	0.09	0.90
Intersection Summary							
Area Type:	Other						
Cycle Length: 100							
Actuated Cycle Length: 100							
Offset: 28 (28%), Referenced to phase 1:WBTL, Start of Yellow							
Natural Cycle: 75							
Control Type: Actuated-Coordinated							
m Volume for 95th percentile queue is metered by upstream signal.							

Splits and Phases: 1: Chili & West /Main



HCM Signalized Intersection Capacity Analysis 1: Chili & West /Main

West Main Street Study
PM Alt 1 - Road Diet

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (vph)	283	3	567	458	25	489
Future Volume (vph)	283	3	567	458	25	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	12	10
Total Lost time (s)	5.0	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
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1719	1630	1717	1681	1422	
Flt Permitted	1.00	0.23	1.00	0.95	1.00	
Satd. Flow (perm)	1719	388	1717	1681	1422	
Peak-hour factor, PHF	0.96	0.96	0.95	0.95	0.89	0.89
Adj. Flow (vph)	295	3	597	482	28	549
RTOR Reduction (vph)	0	0	0	0	0	69
Lane Group Flow (vph)	298	0	597	482	28	480
Confl. Peds. (#/hr)	17	17			19	
Heavy Vehicles (%)	3%	0%	3%	7%	2%	6%
Turn Type	NA	custom	NA	NA	Perm	pm-ov
Protected Phases	2	1	16		1	
Permitted Phases		6		8	8	
Actuated Green, G (s)	20.8	83.2	83.2	6.8	64.2	
Effective Green, g (s)	20.8	83.2	83.2	6.8	64.2	
Actuated g/C Ratio	0.21	0.83	0.83	0.07	0.64	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	357	1035	1428	114	984	
v/s Ratio Prot	c0.17	c0.33	0.28		c0.28	
v/s Ratio Perm		0.15		0.02	0.06	
v/c Ratio	0.83	0.58	0.34	0.25	0.49	
Uniform Delay, d1	38.0	7.3	2.0	44.2	9.3	
Progression Factor	0.81	0.49	0.56	1.00	1.00	
Incremental Delay, d2	14.5	0.3	0.0	1.1	0.4	
Delay (s)	45.3	3.8	1.1	45.3	9.7	
Level of Service	D	A	A	D	A	
Approach Delay (s)	45.3		2.6	11.4		
Approach LOS	D		A	B		
Intersection Summary						
HCM 2000 Control Delay		11.7	HCM 2000 Level of Service			
HCM 2000 Volume to Capacity ratio		0.65	B			
Actuated Cycle Length (s)		100.0	Sum of lost time (s)			
Intersection Capacity Utilization		64.3%	ICU Level of Service			
Analysis Period (min)		15	C			
c Critical Lane Group						

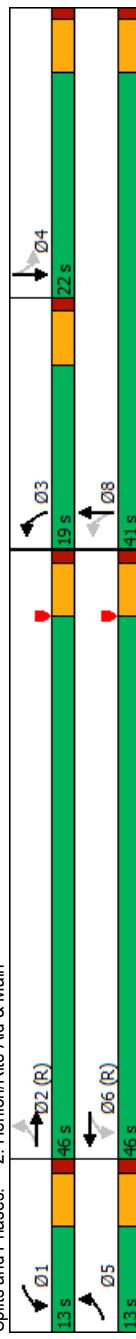
Lanes, Volumes, Timings
2: Henion/Rite Aid & Main

West Main Street Study
PM Alt 1 - Road Diet

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234	
Future Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	50	0	0	50	0	0	0	0	0	0	0	0	
Storage Lanes	1	0	0	1	0	0	0	0	0	0	0	0	
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes	
Right Turn on Red		30		30			30			30			
Link Speed (mph)	378			313			355			307			
Travel Time (s)	8.6			7.1			8.1			7.0			
Confl. Peds. (#/hr)	5	18	18	18	18	5	2	2	1	1	1	2	
Peak Hour Factor	0.89	0.89	0.89	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93	
Heavy Vehicles (%)	8%	3%	4%	6%	3%	0%	5%	4%	5%	0%	3%	3%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	187	697	0	197	757	0	0	781	0	0	619	0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA		
Protected Phases	5	2	1	6			3	8		4			
Permitted Phases	2		6				8			4			
Detector Phase	5	2	1	6			3	8		4			
Switch Phase													
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0		5.0	
Minimum Split (s)	10.0	24.0		10.0	24.0		10.0	22.0		22.0		22.0	
Total Split (s)	13.0	46.0		13.0	46.0		19.0	41.0		22.0		22.0	
Total Split (%)	13.0%	46.0%		13.0%	46.0%		19.0%	41.0%		22.0%		22.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0							0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0							5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag		Lag	
Lead-Lag Optimize?													
Recall Mode	None	C-Max		None	C-Max		None			None		None	
v/c Ratio	0.92	0.96		0.95	1.02		no cap			1.12		1.12	
Control Delay	62.2	55.1		79.1	60.6					106.7		106.7	
Queue Delay	0.0	41.7		0.0	18.3					0.0		0.0	
Total Delay	62.2	96.8		79.1	78.9		Error			106.7		106.7	
Queue Length 50th (ft)	68	443		85	~527		0			~446		~446	
Queue Length 95th (ft)	m#194	#660		#215	#702		0			#664		#664	
Internal Link Dist (ft)		298		233			275			227		227	
Turn Bay Length (ft)	50			50									
Base Capacity (vph)	204	724		208	744		1			552		552	
Starvation Cap Reductn	0	107		0	37		0			0		0	
Spillback Cap Reductn	0	0		0	34		0			0		0	
Storage Cap Reductn	0	0		0	0		0			0		0	
Reduced v/c Ratio	0.92	1.13		0.95	1.07		781.00			1.12		1.12	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 20 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: Henion/Rite Aid & Main



HCM Signalized Intersection Capacity Analysis
2: Henion/Rite Aid & Main

West Main Street Study
PM Alt 1 - Road Diet

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 							
Traffic Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234
Future Volume (vph)	166	454	166	173	562	104	276	288	178	65	276	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	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	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	0.99	1.00	0.99	0.99	1.00	1.00	0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96	1.00	1.00	0.98	1.00	0.96	0.96	1.00	0.95	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.98	0.98	1.00	0.99	0.99	0.99
Satd. Flow (prot)	1671	1734	1703	1703	1800	1703	1800	1800	1703	1721	1721	1721
Flt Permitted	0.10	1.00	1.00	0.10	1.00	1.00	0.45	0.45	1.00	0.86	0.86	0.86
Satd. Flow (perm)	172	1734	1734	175	1800	1734	1800	1800	1734	1480	1480	1480
Peak-hour factor, PHF	0.89	0.89	0.89	0.88	0.88	0.88	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	187	510	187	197	639	118	291	303	187	70	297	252
RTOR Reduction (vph)	0	13	0	0	6	0	0	0	0	0	19	0
Lane Group Flow (vph)	187	684	0	197	751	0	0	781	0	0	600	0
Confl. Peds. (#/hr)	5	18	18	18	5	5	2	1	1	1	2	2
Heavy Vehicles (%)	8%	3%	4%	6%	3%	0%	5%	4%	5%	0%	3%	3%
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA	NA
Protected Phases	5	2	1	6	3	8	4	3	8	4	3	4
Permitted Phases	2	6	6	8	8	8	8	8	8	8	8	8
Actuated Green, G (s)	49.0	41.0	49.0	41.0	41.0	41.0	36.0	36.0	36.0	36.0	36.0	36.0
Effective Green, g (s)	49.0	41.0	49.0	41.0	41.0	41.0	36.0	36.0	36.0	36.0	36.0	36.0
Actuated g/C Ratio	0.49	0.41	0.49	0.41	0.41	0.41	0.36	0.36	0.36	0.36	0.36	0.36
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	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	2.0	2.0	2.0
Lane Grp Cap (vph)	204	710	207	738	738	738	0	0	0	532	532	532
v/s Ratio Prot	0.07	0.39	c0.08	c0.42	c0.42	c0.42				c0.41	c0.41	c0.41
v/s Ratio Perm	0.38	0.39	0.39	0.39	0.39	0.39				1.13	1.13	1.13
v/c Ratio	0.92	0.96	0.95	1.02	1.02	1.02	no cap	no cap	no cap	32.0	32.0	32.0
Uniform Delay, d1	24.2	28.8	24.2	29.5	29.5	29.5	Error	Error	Error	1.00	1.00	1.00
Progression Factor	0.95	1.12	1.12	1.56	0.80	0.80				79.1	79.1	79.1
Incremental Delay, d2	35.2	23.2	35.2	44.6	35.3	35.3	Error	Error	Error	111.1	111.1	111.1
Delay (s)	58.2	55.5	58.2	82.4	59.0	59.0	Error	Error	Error	111.1	111.1	111.1
Level of Service	E	E	E	F	E	E	F	F	F	F	F	F
Approach Delay (s)	56.1	56.1	56.1	63.8	63.8	63.8	Error	Error	Error	111.1	111.1	111.1
Approach LOS	E	E	E	E	E	E	F	F	F	F	F	F
Intersection Summary												
HCM 2000 Control Delay	Error	Error	Error	HCM 2000 Level of Service	HCM 2000 Level of Service	HCM 2000 Level of Service	F	F	F	F	F	F
HCM 2000 Volume to Capacity ratio	1.12	1.12	1.12	1.12	1.12	1.12						
Actuated Cycle Length (s)	100.0	100.0	100.0	Sum of lost time (s)	Sum of lost time (s)	Sum of lost time (s)	20.0	20.0	20.0	20.0	20.0	20.0
Intersection Capacity Utilization	Err%	Err%	Err%	ICU Level of Service	ICU Level of Service	ICU Level of Service	H	H	H	H	H	H
Analysis Period (min)	15	15	15	15	15	15						
c Critical Lane Group												

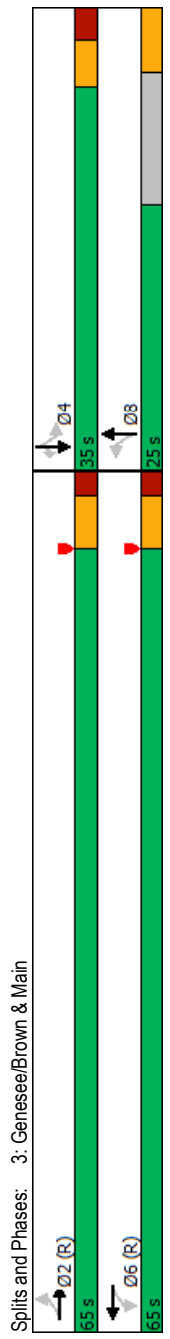
Lanes, Volumes, Timings
3: Genesee/Brown & Main

West Main Street Study
PM Alt 1 - Road Diet



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Future Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	15	10
Storage Length (ft)	150	225	200	200	200	200	0	0	0	100	200	200
Storage Lanes	1	0	0	1	0	0	1	0	0	1	1	1
Taper Length (ft)	25	25	No	25	No	No	25	No	No	25	No	No
Right Turn on Red												
Link Speed (mph)	30	30		30			30			30		
Link Distance (ft)	177	1167		1167			322			169		
Travel Time (s)	20	4.0	19	19	26.5	20	10	7.3	19	3.8	19	10
Confl. Peds. (#/hr)	0.93	0.93	0.93	0.89	0.89	0.89	0.72	0.72	0.72	0.89	0.89	0.89
Peak Hour Factor	0%	3%	0%	4%	3%	0%	2%	2%	2%	0%	0%	0%
Heavy Vehicles (%)	0	0	0	0	5	5	0	0	0	0	0	0
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	653	0	94	822	0	0	0	0	27	29	25
Turn Type	Perm	NA	Perm	NA	NA	Perm	Perm	8	8	4	4	4
Protected Phases	2	2	6	6	6	6	8	8	8	4	4	4
Permitted Phases	2	2	6	6	6	6	8	8	8	4	4	4
Detector Phase	2	2	6	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	25.0	25.0	25.0	25.0	25.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	25.0	25.0	25.0	25.0	33.0	33.0	33.0
Total Split (s)	65.0	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	35.0%	35.0%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None	None
v/c Ratio	0.07	0.49	0.19	0.19	0.63	0.16	0.11	0.13	0.16	0.11	0.13	0.13
Control Delay	2.8	3.1	2.1	2.1	3.9	36.4	34.7	35.4	36.4	34.7	35.4	35.4
Queue Delay	0.0	0.5	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	3.6	2.1	2.1	5.0	36.4	34.7	35.4	36.4	34.7	35.4	35.4
Queue Length 50th (ft)	1	35	4	4	36	17	18	15	17	18	15	15
Queue Length 95th (ft)	m3	m61	m8	m8	65	36	37	34	36	37	34	34
Internal Link Dist (ft)	97	1087				242			89			
Turn Bay Length (ft)	150	1343	200	496	1311	100	370	606	100	370	606	419
Base Capacity (vph)	403	310	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	253	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.63	0.19	0.19	0.78	0.07	0.05	0.06	0.07	0.05	0.06	0.06

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
m Volume for 95th percentile queue is metered by upstream signal.	



HCM Signalized Intersection Capacity Analysis 3: Genesee/Brown & Main

West Main Street Study
PM Alt 1 - Road Diet

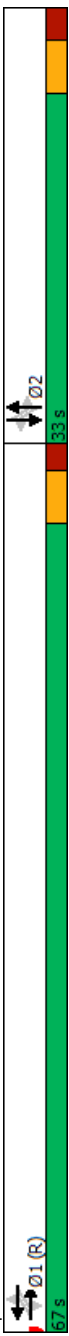
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Future Volume (vph)	27	591	17	84	694	37	0	0	0	24	26	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	15	10
Total Lost time (s)	6.0	6.0		6.0	6.0					6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00					1.00	1.00	1.00
Frb, ped/bikes	1.00	1.00		1.00	1.00					1.00	1.00	0.96
Fpb, ped/bikes	0.99	1.00		0.99	1.00					0.95	1.00	1.00
Frt	1.00	1.00		1.00	0.99					1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)	1669	1713		1599	1672					1605	2090	1445
Flt Permitted	0.29	1.00		0.37	1.00					0.76	1.00	1.00
Satd. Flow (perm)	509	1713		631	1672					1279	2090	1445
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.72	0.72	0.72	0.89	0.89	0.89
Adj. Flow (vph)	29	635	18	94	780	42	0	0	0	27	29	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	29	653	0	94	822	0	0	0	0	27	29	25
Confl. Peds. (#/hr)	20		19	19		20	10		19	19		10
Heavy Vehicles (%)	0%	3%	0%	4%	3%	0%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	5	5	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	76.0	76.0		76.0	76.0					12.0	12.0	12.0
Effective Green, g (s)	76.0	76.0		76.0	76.0					12.0	12.0	12.0
Actuated g/C Ratio	0.76	0.76		0.76	0.76					0.12	0.12	0.12
Clearance Time (s)	6.0	6.0		6.0	6.0					6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)	386	1301		479	1270					153	250	173
v/s Ratio Prot		0.38			c0.49						0.01	
v/s Ratio Perm	0.06			0.15						c0.02		0.02
v/c Ratio	0.08	0.50		0.20	0.65					0.18	0.12	0.14
Uniform Delay, d1	3.1	4.7		3.4	5.7					39.6	39.3	39.4
Progression Factor	0.45	0.33		0.26	0.28					1.00	1.00	1.00
Incremental Delay, d2	0.3	0.9		0.6	1.7					0.6	0.2	0.4
Delay (s)	1.6	2.5		1.5	3.3					40.1	39.5	39.8
Level of Service	A	A		A	A					D	D	D
Approach Delay (s)		2.5			3.1			0.0			39.8	
Approach LOS		A			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			4.6			HCM 2000 Level of Service						
HCM 2000 Volume to Capacity ratio			0.58			A						
Actuated Cycle Length (s)			100.0			Sum of lost time (s)						
Intersection Capacity Utilization			85.9%			12.0						
Analysis Period (min)			15			E						
Critical Lane Group												

Lanes, Volumes, Timings
4: Jefferson & Main

West Main Street Study
PM Alt 1 - Road Diet

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16	
Future Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10	
Storage Length (ft)	75		0	100		0	50		0	100		0	
Storage Lanes	1		0	1		0	0		0	1		0	
Taper Length (ft)	25	Yes			25	Yes			25	Yes			
Right Turn on Red													
Link Speed (mph)	30	30		30	30		30	30		30	30		
Link Distance (ft)	325	653		653	1957		1957	388		388			
Travel Time (s)	18	7.4	7	7	14.8	18	15	44.5	6	6	8.8	15	
Confl. Peds. (#/hr)													
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.87	0.87	0.87	0.89	0.89	0.89	
Heavy Vehicles (%)	0%	2%	3%	1%	3%	0%	7%	3%	7%	13%	1%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	44	702	0	87	829	0	0	279	0	35	187	0	
Turn Type	Perm	NA	0	Perm	NA	0	Perm	NA	0	Perm	NA	0	
Protected Phases	1	1		1	1		2	2		2	2		
Permitted Phases	1	1		1	1		2	2		2	2		
Detector Phase	1	1		1	1		2	2		2	2		
Switch Phase													
Minimum Initial (s)	21.0	21.0		21.0	21.0		6.0	6.0		6.0	6.0		
Minimum Split (s)	40.0	40.0		40.0	40.0		30.0	30.0		30.0	30.0		
Total Split (s)	67.0	67.0		67.0	67.0		33.0	33.0		33.0	33.0		
Total Split (%)	67.0%	67.0%		67.0%	67.0%		33.0%	33.0%		33.0%	33.0%		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.5	2.5		2.5	2.5		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5		
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag		
Lead-Lag Optimize?													
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None		
v/c Ratio	0.17	0.62		0.26	0.74		0.95	0.95		0.23	0.48		
Control Delay	9.6	15.2		9.2	17.4		75.5	75.5		33.8	36.0		
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0		
Total Delay	9.6	15.2		9.2	17.7		75.5	75.5		33.8	36.0		
Queue Length 50th (ft)	6	249		7	334		159	159		18	99		
Queue Length 95th (ft)	m32	568		m35	488		#276	#276		44	158		
Internal Link Dist (ft)		245			573		1877	1877			308		
Turn Bay Length (ft)	75			100						100			
Base Capacity (vph)	256	1124		338	1115		343	343		180	460		
Starvation Cap Reductn	0	0		0	37		0	0		0	0		
Spillback Cap Reductn	0	0		0	0		0	0		0	0		
Storage Cap Reductn	0	0		0	0		0	0		0	0		
Reduced v/c Ratio	0.17	0.62		0.26	0.77		0.81	0.81		0.19	0.41		
Intersection Summary													
Area Type:	Other												
Cycle Length:	100												
Actuated Cycle Length:	100												
Offset:	34 (34%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle:	75												
Control Type:	Actuated-Coordinated												
#	95th percentile volume exceeds capacity, queue may be longer.												
	Queue shown is maximum after two cycles.												
m	Volume for 95th percentile queue is metered by upstream signal.												

Splits and Phases: 4: Jefferson & Main

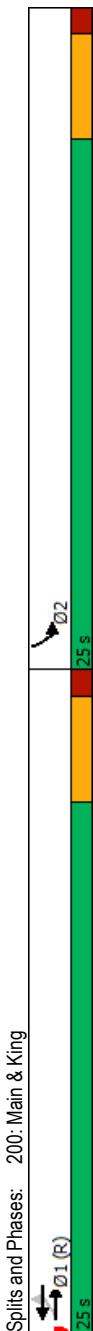


HCM Signalized Intersection Capacity Analysis
4: Jefferson & Main

West Main Street Study
PM Alt 1 - Road Diet

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16
Future Volume (vph)	39	602	16	71	667	13	55	110	78	31	150	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	10	10	10	10
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	1.00	0.99	0.99	1.00
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00	0.99	0.99	1.00	0.99	1.00	1.00
Frt	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	1.00	0.99	0.99	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.99	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1675	1730	1663	1716	1663	1716	1568	1568	1480	1723	1723	1723
Flt Permitted	0.22	1.00	0.30	1.00	0.30	1.00	0.78	0.78	0.44	1.00	0.44	1.00
Satd. Flow (perm)	395	1730	521	1716	521	1716	1232	1232	683	1723	1723	1723
Peak-hour factor, PHF	0.88	0.88	0.88	0.82	0.82	0.82	0.87	0.87	0.87	0.89	0.89	0.89
Adj. Flow (vph)	44	684	18	87	813	16	63	126	90	35	169	18
RTOR Reduction (vph)	0	1	0	0	1	0	0	18	0	0	4	0
Lane Group Flow (vph)	44	701	0	87	828	0	0	261	0	35	183	0
Confl. Peds. (#/hr)	18		7	7		18	15		6	6		15
Heavy Vehicles (%)	0%	2%	3%	1%	3%	0%	7%	3%	7%	13%	1%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	1	1	1	1	1	1	2	2	2	2	2	2
Permitted Phases	1	1	1	1	1	1	2	2	2	2	2	2
Actuated Green, G (s)	65.0	65.0	65.0	65.0	65.0	65.0	22.5	22.5	22.5	22.5	22.5	22.5
Effective Green, g (s)	65.0	65.0	65.0	65.0	65.0	65.0	22.5	22.5	22.5	22.5	22.5	22.5
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65	0.65	0.22	0.22	0.22	0.22	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	256	1124	338	1115	338	1115	277	277	153	387	387	387
v/s Ratio Prot	0.41	0.41	0.41	0.17	c0.48	0.17	c0.21	c0.21	0.05	0.11	0.11	0.11
v/s Ratio Perm	0.11	0.62	0.17	0.26	0.74	0.26	0.94	0.94	0.23	0.47	0.47	0.47
Uniform Delay, d1	6.9	10.3	7.4	11.8	7.4	11.8	38.1	38.1	31.7	33.6	33.6	33.6
Progression Factor	0.93	1.09	0.85	1.02	0.85	1.02	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	2.4	1.4	3.4	1.4	3.4	38.4	38.4	0.3	0.3	0.3	0.3
Delay (s)	7.8	13.7	7.7	15.5	7.7	15.5	76.5	76.5	31.9	33.9	33.9	33.9
Level of Service	A	B	A	B	A	B	E	E	C	C	C	C
Approach Delay (s)	13.3	13.3	13.3	14.8	14.8	14.8	76.5	76.5	33.6	33.6	33.6	33.6
Approach LOS	B	B	B	B	B	B	E	E	C	C	C	C
Intersection Summary												
HCM 2000 Control Delay	24.2		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)		12.5							
Intersection Capacity Utilization	101.1%		ICU Level of Service		G							
Analysis Period (min)	15											
Critical Lane Group												

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	719	904	32	20	45
Future Volume (vph)	41	719	904	32	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	75			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25			Yes	25	Yes
Right Turn on Red						
Link Speed (mph)		30	30		30	
Link Distance (ft)		653	663		382	
Travel Time (s)		14.8	15.1		8.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	757	986	0	68	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases	1					
Detector Phase	1	1	1		2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		6.0	
Minimum Split (s)	25.0	25.0	25.0		25.0	
Total Split (s)	25.0	25.0	25.0		25.0	
Total Split (%)	50.0%	50.0%	50.0%		50.0%	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag	Lead	Lead	Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max		None	
v/c Ratio	0.15	0.51	0.67		0.24	
Control Delay	5.0	10.2	11.2		12.1	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	5.0	10.2	11.2		12.1	
Queue Length 50th (ft)	9	358	570		6	
Queue Length 95th (ft)	m12	539	#413		32	
Internal Link Dist (ft)		573	583		302	
Turn Bay Length (ft)	75					
Base Capacity (vph)	290	1473	1466		758	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	1		82	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.15	0.51	0.67		0.10	
Intersection Summary						
Area Type:	Other					
Cycle Length: 50						
Actuated Cycle Length: 50						
Offset: 27 (54%), Referenced to phase 1:EBWB, Start of Green						
Natural Cycle: 70						
Control Type: Actuated-Coordinated						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						



HCM Signalized Intersection Capacity Analysis 200: Main & King

West Main Street Study
PM Alt 1 - Road Diet



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	719	904	32	20	45
Future Volume (vph)	41	719	904	32	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	15
Total Lost time (s)	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.91	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1770	1863	1854		1830	
Flt Permitted	0.20	1.00	1.00		0.98	
Satd. Flow (perm)	367	1863	1854		1830	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	43	757	952	34	21	47
RTOR Reduction (vph)	0	0	1	0	40	0
Lane Group Flow (vph)	43	757	985	0	28	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases	1					
Actuated Green, G (s)	35.5	35.5	35.5		4.5	
Effective Green, g (s)	35.5	35.5	35.5		4.5	
Actuated g/C Ratio	0.71	0.71	0.71		0.09	
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0		3.0	
Lane Grp Cap (vph)	260	1322	1316		164	
v/s Ratio Prot		0.41	c0.53		c0.02	
v/s Ratio Perm	0.12					
v/c Ratio	0.17	0.57	0.75		0.17	
Uniform Delay, d1	2.4	3.5	4.5		21.0	
Progression Factor	1.16	2.31	1.70		1.00	
Incremental Delay, d2	1.1	1.4	3.2		0.5	
Delay (s)	3.8	9.6	10.9		21.5	
Level of Service	A	A	B		C	
Approach Delay (s)		9.3	10.9		21.5	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay		10.6			HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio		0.68				
Actuated Cycle Length (s)		50.0			Sum of lost time (s)	10.0
Intersection Capacity Utilization		62.9%			ICU Level of Service	B
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings
201: McDonald's/Canal & Main

West Main Street Study
PM Alt 1 - Road Diet

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Future Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	15	15	15
Storage Length (ft)	75	0	0	75	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	1	0	0	1	0	0	0	0	0
Taper Length (ft)	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes
Right Turn on Red												
Link Speed (mph)	30	30		30	30		30	30		30	30	
Link Distance (ft)	663	663		1045	1045		291	291		397	397	
Travel Time (s)	15.1	15.1		23.8	23.8		6.6	6.6		9.0	9.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	887	0	21	957	0	31	33	0	0	77	0
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	0
Protected Phases	1	1		1	1		2	2		2	2	
Permitted Phases	1	1		1	1		2	2		2	2	
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	23.0	23.0		23.0	23.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0	29.0	
Total Split (s)	71.0	71.0		71.0	71.0		29.0	29.0		29.0	29.0	
Total Split (%)	71.0%	71.0%		71.0%	71.0%		29.0%	29.0%		29.0%	29.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.02	0.57		0.05	0.61		0.31	0.23		0.48	0.48	
Control Delay	1.6	7.5		3.8	11.3		51.0	19.0		33.5	33.5	
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	1.6	7.6		3.8	11.3		51.0	19.0		33.5	33.5	
Queue Length 50th (ft)	1	418		3	541		19	1		22	22	
Queue Length 95th (ft)	m1	392		m4	m552		47	29		66	66	
Internal Link Dist (ft)		583			965			211			317	
Turn Bay Length (ft)	75			75								
Base Capacity (vph)	405	1559		451	1569		305	373		409	409	
Starvation Cap Reductn	0	128		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.62		0.05	0.61		0.10	0.09		0.19	0.19	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 5 (5%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 80												
Control Type: Actuated-Coordinated												
m Volume for 95th percentile queue is metered by upstream signal.												

Spillback and Phases: 201: McDonald's/Canal & Main



HCM Signalized Intersection Capacity Analysis
201: McDonald's/Canal & Main

West Main Street Study
PM Alt 1 - Road Diet

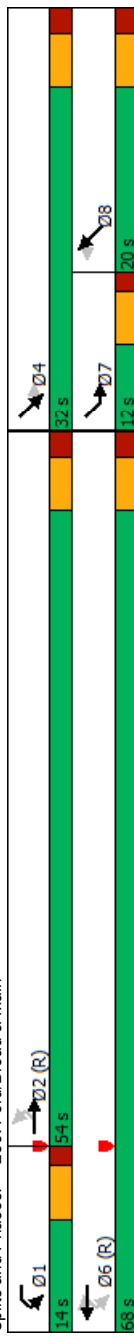
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Future Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	15	15	15
Total Lost time (s)	6.0	6.0		6.0	6.0		5.5	5.5			5.5	
Lane Util. Factor	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	0.85			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1848		1770	1860		1652	1486			1862	
Flt Permitted	0.26	1.00		0.29	1.00		0.75	1.00			0.85	
Satd. Flow (perm)	481	1848		537	1860		1300	1486			1609	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	840	47	21	948	9	31	1	32	33	3	41
RTOR Reduction (vph)	0	1	0	0	0	0	0	30	0	0	38	0
Lane Group Flow (vph)	8	886	0	21	957	0	31	3	0	0	39	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	1		1	1		2	2		2	2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	82.0	82.0		82.0	82.0		6.5	6.5		6.5		
Effective Green, g (s)	82.0	82.0		82.0	82.0		6.5	6.5		6.5		
Actuated g/C Ratio	0.82	0.82		0.82	0.82		0.06	0.06		0.06		
Clearance Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		
Lane Grp Cap (vph)	394	1515		440	1525		84	96		104		
v/s Ratio Prot	0.48				c0.51			0.00				
v/s Ratio Perm	0.02			0.04			0.02			c0.02		
v/c Ratio	0.02	0.58		0.05	0.63		0.37	0.03		0.37		
Uniform Delay, d1	1.6	3.1		1.7	3.3		44.8	43.8		44.8		
Progression Factor	0.64	1.67		1.59	2.82		1.00	1.00		1.00		
Incremental Delay, d2	0.1	1.5		0.0	0.2		1.0	0.0		0.8		
Delay (s)	1.1	6.7		2.7	9.6		45.8	43.9		45.6		
Level of Service	A	A		A	A		D	D		D		
Approach Delay (s)		6.7			9.4			44.8		45.6		
Approach LOS		A			A			D		D		
Intersection Summary												
HCM 2000 Control Delay	10.7					HCM 2000 Level of Service						
HCM 2000 Volume to Capacity ratio	0.61					B						
Actuated Cycle Length (s)	100.0					Sum of lost time (s)						
Intersection Capacity Utilization	68.5%					ICU Level of Service						
Analysis Period (min)	15					C						
Critical Lane Group												

Lanes, Volumes, Timings
288: Ford/Broad & Main

West Main Street Study
PM Alt 1 - Road Diet

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Future Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0	0	100	100	100	125	0	0	125	0	0
Storage Lanes	1	0	0	1	1	1	1	0	0	1	0	0
Taper Length (ft)	25		Yes	25		Yes	25		Yes	25		Yes
Right Turn on Red												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			417			1317			403	
Travel Time (s)		23.8			9.5			29.9			9.2	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	125	889	0	350	1248	896	107	298	0	74	342	0
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases												
Permitted Phases	2	2	1	6	6	6	7	4		8	8	
Detector Phase	2	2	2	1	6	6	7	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	5.0	6.0		6.0	6.0	
Minimum Split (s)	35.0	35.0		12.0	35.0	35.0	12.0	32.0		12.0	12.0	
Total Split (s)	54.0	54.0		14.0	68.0	68.0	12.0	32.0		20.0	20.0	
Total Split (%)	54.0%	54.0%		14.0%	68.0%	68.0%	12.0%	32.0%		20.0%	20.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		1.5	2.0	2.0	1.5	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		5.5	6.0	6.0	5.5	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	Max	Max		Max	Max	
v/c Ratio	1.69	1.03		1.55	1.08	0.81	0.52	0.36		0.51	0.69	
Control Delay	382.8	66.7		290.9	72.0	15.5	39.3	30.7		53.0	46.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	382.8	66.7		290.9	72.0	15.5	39.3	30.7		53.0	46.5	
Queue Length 50th (ft)	~112	~600		~267	~894	253	59	82		44	104	
Queue Length 95th (ft)	#193	#731		#402	#1019	361	109	122		92	153	
Internal Link Dist (ft)	965			337				1237			323	
Turn Bay Length (ft)	125			100		100	125			125		
Base Capacity (vph)	74	863		226	1155	1110	204	836		146	499	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	1.69	1.03		1.55	1.08	0.81	0.52	0.36		0.51	0.69	
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	57 (57%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green											
Natural Cycle:	100											
Control Type:	Actuated-Coordinated											
~	Volume exceeds capacity, queue is theoretically infinite.											
#	Queue shown is maximum after two cycles.											
	95th percentile volume exceeds capacity, queue may be longer.											
	Queue shown is maximum after two cycles.											

Splits and Phases: 288: Ford/Broad & Main



HCM Signalized Intersection Capacity Analysis
288: Ford/Broad & Main

West Main Street Study
PM Alt 1 - Road Diet

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Future Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		5.5	6.0	6.0	5.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91		1.00	0.95	
Frt	1.00	0.92		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1714		1770	1863	1583	1610	3343		1770	3454	
Flt Permitted	0.08	1.00		0.07	1.00	1.00	0.29	0.94		0.56	1.00	
Satd. Flow (perm)	155	1714		139	1863	1583	496	3147		1048	3454	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	125	415	474	350	1248	896	119	262	24	74	287	55
RTOR Reduction (vph)	0	41	0	0	0	129	0	6	0	0	15	0
Lane Group Flow (vph)	125	848	0	350	1248	767	107	292	0	74	327	0
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	NA	NA
Protected Phases	2			1	6		7	4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	48.0	48.0		62.0	62.0	62.0	26.0	26.0		14.0	14.0	
Effective Green, g (s)	48.0	48.0		62.0	62.0	62.0	26.0	26.0		14.0	14.0	
Actuated g/C Ratio	0.48	0.48		0.62	0.62	0.62	0.26	0.26		0.14	0.14	
Clearance Time (s)	6.0	6.0		5.5	6.0	6.0	5.5	6.0		6.0	6.0	
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)	74	822		224	1155	981	201	830		146	483	
v/s Ratio Prot		0.49		c0.13	0.67		c0.03	0.02		c0.09		
v/c Ratio Perm	c0.81			0.83		0.48	0.10	0.07		0.07		
v/c Ratio	1.69	1.03		1.56	1.08	0.78	0.53	0.35		0.51	0.68	
Uniform Delay, d1	26.0	26.0		31.0	19.0	14.0	29.8	30.1		39.8	40.8	
Progression Factor	1.25	1.24		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	356.4	38.0		273.8	51.1	6.2	9.7	1.2		12.0	7.4	
Delay (s)	388.9	70.3		304.8	70.1	20.2	39.5	31.3		51.8	48.2	
Level of Service	F	E		F	E	C	D	C		D	D	
Approach Delay (s)		109.5			85.1			33.5			48.9	
Approach LOS		F			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			82.5			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.40									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			99.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
200: Main & King

Bull's Head Urban Renewal TIS
PM Alt 2 - Road Diet with protected lefts

	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	41	719	904	32	20	45	
Future Volume (vph)	41	719	904	32	20	45	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	15	15	
Storage Length (ft)	75			0	0	0	
Storage Lanes	1			0	1	0	
Taper Length (ft)	25			Yes	25	Yes	
Right Turn on Red							
Link Speed (mph)	30	30	30		30		
Link Distance (ft)	653	663			382		
Travel Time (s)	14.8	15.1			8.7		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	43	757	986	0	68	0	
Turn Type	Prot	NA	NA		Prot		
Protected Phases	3	1	1		2		
Permitted Phases							
Detector Phase	3	1	1		2		
Switch Phase							
Minimum Initial (s)	3.0	7.0	7.0		6.0		
Minimum Split (s)	8.0	25.0	25.0		25.0		
Total Split (s)	9.0	66.0	66.0		25.0		
Total Split (%)	9.0%	66.0%	66.0%		25.0%		
Yellow Time (s)	4.0	4.0	4.0		4.0		
All-Red Time (s)	1.0	1.0	1.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	5.0	5.0	5.0		5.0		
Lead/Lag	Lag	Lead	Lead				
Lead-Lag Optimize?							
Recall Mode	None	C-Max	C-Max		None		
v/c Ratio	0.61	0.52	0.68		0.38		
Control Delay	77.0	4.7	13.7		25.1		
Queue Delay	0.0	0.9	0.8		0.0		
Total Delay	77.0	5.6	14.5		25.2		
Queue Length 50th (ft)	28	56	678		13		
Queue Length 95th (ft)	m39	m235	808		53		
Internal Link Dist (ft)		573	583		302		
Turn Bay Length (ft)	75						
Base Capacity (vph)	70	1463	1456		403		
Starvation Cap Reductn	0	417	209		0		
Spillback Cap Reductn	0	0	74		17		
Storage Cap Reductn	0	0	0		0		
Reduced v/c Ratio	0.61	0.72	0.79		0.18		
Intersection Summary							
Area Type:	Other						
Cycle Length: 100							
Actuated Cycle Length: 100							
Offset: 27 (27%), Referenced to phase 1:EBWB, Start of Green							
Natural Cycle: 90							
Control Type: Actuated-Coordinated							
m Volume for 95th percentile queue is metered by upstream signal.							

Spills and Phases: 200: Main & King



HCM Signalized Intersection Capacity Analysis 200: Main & King

Bull's Head Urban Renewal TIS
PM Alt 2 - Road Diet with protected lefts



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	719	904	32	20	45
Future Volume (vph)	41	719	904	32	20	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	15
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.91	
Flt Protected	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (prot)	1770	1863	1854		1830	
Flt Permitted	0.95	1.00	1.00		0.98	
Satd. Flow (perm)	1770	1863	1854		1830	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	43	757	952	34	21	47
RTOR Reduction (vph)	0	0	1	0	44	0
Lane Group Flow (vph)	43	757	985	0	24	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	3	1	1		2	
Permitted Phases						
Actuated Green, G (s)	3.2	75.6	75.6		6.2	
Effective Green, g (s)	3.2	75.6	75.6		6.2	
Actuated g/C Ratio	0.03	0.76	0.76		0.06	
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	3.0	2.0	2.0		3.0	
Lane Grp Cap (vph)	56	1408	1401		113	
v/s Ratio Prot	c0.02	0.41	c0.53		c0.01	
v/s Ratio Perm						
v/c Ratio	0.77	0.54	0.70		0.21	
Uniform Delay, d1	48.0	5.0	6.4		44.6	
Progression Factor	1.09	0.66	1.54		1.00	
Incremental Delay, d2	33.6	1.0	2.4		0.9	
Delay (s)	86.2	4.3	12.2		45.5	
Level of Service	F	A	B		D	
Approach Delay (s)		8.7	12.2		45.5	
Approach LOS		A	B		D	
Intersection Summary						
HCM 2000 Control Delay		11.9		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.67				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization		62.9%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings
201: McDonald's/Canal & Main

Bull's Head Urban Renewal TIS
PM Alt 2 - Road Diet with protected lefts

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Future Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	15	15	15
Storage Length (ft)	75	0	0	75	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	1	0	0	1	0	0	0	0	0
Taper Length (ft)	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes	25	Yes	Yes
Right Turn on Red												
Link Speed (mph)	30			30				30			30	
Link Distance (ft)	663			1045				291			397	
Travel Time (s)	15.1			23.8				6.6			9.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	887	0	21	957	0	31	33	0	0	77	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	3	1		3	1			2			2	
Permitted Phases							2			2		
Detector Phase	3	1		3	1		2			2		
Switch Phase												
Minimum Initial (s)	3.0	23.0		3.0	23.0		6.0	6.0		6.0		6.0
Minimum Split (s)	8.0	41.0		8.0	41.0		29.0	29.0		29.0		29.0
Total Split (s)	8.0	63.0		8.0	63.0		29.0	29.0		29.0		29.0
Total Split (%)	8.0%	63.0%		8.0%	63.0%		29.0%	29.0%		29.0%		29.0%
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	2.0	2.5		2.0	2.5		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	6.0		5.0	6.0		5.5	5.5		5.5		5.5
Lead/Lag	Lag	Lead		Lag	Lead							
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None		None
v/c Ratio	0.15	0.60		0.40	0.65		0.31	0.23		0.48		0.48
Control Delay	44.0	10.3		68.0	17.1		51.0	19.0		33.5		33.5
Queue Delay	0.0	0.0		0.0	0.7		0.0	0.0		0.0		0.0
Total Delay	44.0	10.3		68.0	17.8		51.0	19.0		33.5		33.5
Queue Length 50th (ft)	5	201		13	623		19	1		22		22
Queue Length 95th (ft)	m10	324		m12	m513		47	29		66		66
Internal Link Dist (ft)		583			965			211				317
Turn Bay Length (ft)	75			75								
Base Capacity (vph)	53	1470		53	1480		305	373		409		409
Starvation Cap Reductn	0	0		0	0		0	0		0		0
Spillback Cap Reductn	0	0		0	221		0	0		4		4
Storage Cap Reductn	0	0		0	0		0	0		0		0
Reduced v/c Ratio	0.15	0.60		0.40	0.76		0.10	0.09		0.19		0.19
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 5 (5%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 90												
Control Type: Actuated-Coordinated												
m Volume for 95th percentile queue is metered by upstream signal.												

Spills and Phases: 201: McDonald's/Canal & Main



HCM Signalized Intersection Capacity Analysis
201: McDonald's/Canal & Main

Bull's Head Urban Renewal TIS
PM Alt 2 - Road Diet with protected lefts

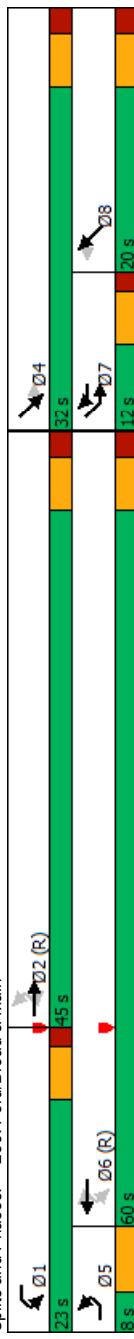
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Future Volume (vph)	8	798	45	20	901	9	29	1	30	31	3	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	15	15	15
Total Lost time (s)	5.0	6.0		5.0	6.0		5.5	5.5			5.5	
Lane Util. Factor	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	0.85			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1848		1770	1860		1652	1486			1862	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	1.00			0.85	
Satd. Flow (perm)	1770	1848		1770	1860		1300	1486			1609	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	840	47	21	948	9	31	1	32	33	3	41
RTOR Reduction (vph)	0	1	0	0	0	0	0	30	0	0	38	0
Lane Group Flow (vph)	8	886	0	21	957	0	31	3	0	0	39	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	3	1		3	1			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	1.8	75.2		1.8	75.2		6.5	6.5			6.5	
Effective Green, g (s)	1.8	75.2		1.8	75.2		6.5	6.5			6.5	
Actuated g/C Ratio	0.02	0.75		0.02	0.75		0.06	0.06			0.06	
Clearance Time (s)	5.0	6.0		5.0	6.0		5.5	5.5			5.5	
Vehicle Extension (s)	3.0	2.0		3.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	31	1389		31	1398		84	96			104	
v/s Ratio Prot	0.00	0.48		c0.01	c0.51			0.00			c0.02	
v/s Ratio Perm							0.02					
v/c Ratio	0.26	0.64		0.68	0.68		0.37	0.03			0.37	
Uniform Delay, d1	48.4	5.9		48.8	6.3		44.8	43.8			44.8	
Progression Factor	0.81	1.31		1.38	2.36		1.00	1.00			1.00	
Incremental Delay, d2	4.0	2.1		5.2	0.3		1.0	0.0			0.8	
Delay (s)	43.3	9.8		72.4	15.2		45.8	43.9			45.6	
Level of Service	D	A		E	B		D	D			D	
Approach Delay (s)		10.1			16.4			44.8			45.6	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.6			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.5			
Intersection Capacity Utilization			68.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
288: Ford/Broad & Main

Bull's Head Urban Renewal TIS
PM Alt 2 - Road Diet with protected lefts

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Future Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	125	100	100	100	100	125	0	125	0	125	0
Storage Lanes	1	1	1	1	1	1	1	0	1	1	1	0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	1045			417			1317			403		
Travel Time (s)	23.8			9.5			29.9			9.2		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	125	415	474	350	1248	896	107	298	0	74	342	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	NA	NA	NA
Protected Phases	5	2	2	1	6	7	7	4		8		
Permitted Phases	2		2	6		6	4			8		
Detector Phase	5	2	2	1	6	7	7	4		8		
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	5.0	10.0	5.0	5.0	6.0		6.0		
Minimum Split (s)	8.0	35.0	35.0	12.0	35.0	12.0	12.0	32.0		12.0		
Total Split (s)	8.0	45.0	45.0	23.0	60.0	12.0	12.0	32.0		20.0		
Total Split (%)	8.0%	45.0%	45.0%	23.0%	60.0%	12.0%	12.0%	32.0%		20.0%		
Yellow Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0		
All-Red Time (s)	0.0	2.0	2.0	1.5	2.0	1.5	1.5	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	5.0	6.0	6.0	5.5	6.0	5.5	5.5	6.0		6.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	Max	Max	Max		Max		
v/c Ratio	0.97	0.52	0.56	0.64	1.24	0.83	0.52	0.36		0.51	0.69	
Control Delay	89.0	20.2	9.5	14.5	141.2	19.6	39.3	30.7		53.0	46.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	89.0	20.2	9.5	14.5	141.2	19.6	39.3	30.7		53.0	46.5	
Queue Length 50th (ft)	32	128	31	95	~994	348	59	82		44	104	
Queue Length 95th (ft)	#115	287	125	132	#1118	464	109	122		92	153	
Internal Link Dist (ft)		965		337				1237			323	
Turn Bay Length (ft)	125	125	125	100	100	100	125			125		
Base Capacity (vph)	129	798	843	595	1006	1081	204	836		146	499	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.97	0.52	0.56	0.59	1.24	0.83	0.52	0.36		0.51	0.69	
Intersection Summary												
Area Type: Other												
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 57 (57%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green												
Natural Cycle: 100												
Control Type: Actuated-Coordinated												
~ Volume exceeds capacity, queue is theoretically infinite.												
# Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 288: Ford/Broad & Main



HCM Signalized Intersection Capacity Analysis
288: Ford/Broad & Main

Bull's Head Urban Renewal TIS
PM Alt 2 - Road Diet with protected lefts

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Future Volume (vph)	105	349	398	294	1048	753	107	236	22	69	267	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0	5.5	6.0	5.5	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	1.00	0.98	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1610	3343	1770	3454	1770	3454
Flt Permitted	0.09	1.00	1.00	0.34	1.00	1.00	0.29	0.94	0.56	1.00	0.56	1.00
Satd. Flow (perm)	174	1863	1583	635	1863	1583	496	3147	1048	3454	1048	3454
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	125	415	474	350	1248	896	119	262	24	74	287	55
RTOR Reduction (vph)	0	0	165	0	0	34	0	6	0	0	15	0
Lane Group Flow (vph)	125	415	309	350	1248	862	107	292	0	74	327	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	NA	NA	NA
Protected Phases	5	2		1	6	7	7	4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	45.9	42.9	42.9	62.0	54.0	60.5	26.0	26.0		14.0	14.0	
Effective Green, g (s)	45.9	42.9	42.9	62.0	54.0	60.5	26.0	26.0		14.0	14.0	
Actuated g/C Ratio	0.46	0.43	0.43	0.62	0.54	0.60	0.26	0.26		0.14	0.14	
Clearance Time (s)	5.0	6.0	6.0	5.5	6.0	5.5	5.5	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	127	799	679	548	1006	957	201	830		146	483	
v/s Ratio Prot	0.03	0.22		c0.09	c0.67	c0.06	0.03	0.02		c0.09		
v/s Ratio Perm	0.42		0.20	0.31		0.49	0.10	0.07		0.07		
v/c Ratio	0.98	0.52	0.46	0.64	1.24	0.90	0.53	0.35		0.51	0.68	
Uniform Delay, d1	30.0	21.0	20.3	11.2	23.0	17.1	29.8	30.1		39.8	40.8	
Progression Factor	1.00	0.81	0.83	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	69.4	2.1	1.9	1.8	116.8	13.1	9.7	1.2		12.0	7.4	
Delay (s)	99.4	19.1	18.8	13.0	139.8	30.3	39.5	31.3		51.8	48.2	
Level of Service	F	B	B	B	F	C	D	C		D	D	
Approach Delay (s)		28.9			82.7			33.5			48.9	
Approach LOS		C			F			C			D	
Intersection Summary												
HCM 2000 Control Delay		62.2			HCM 2000 Level of Service							
HCM 2000 Volume to Capacity ratio		1.11			E							
Actuated Cycle Length (s)		100.0			Sum of lost time (s)							
Intersection Capacity Utilization		96.0%			F							
Analysis Period (min)		15			23.0							
c Critical Lane Group					F							



CITY OF ROCHESTER

**WEST MAIN
MULTIMODAL
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DECEMBER 2021