APPENDIX
MONTPELIER DOWNTOWN CORE MASTER PLAN

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Community Engagement Summary
SURVEY RESULTS

An online survey was launched on August 17, 2019 and remained open until September 23, 2019. The survey received around 40 responses. The survey asked respondents to provide feedback on their general experience in Montpelier and to prioritize land use and streetscape features. Respondents were asked to rate their streetscape preferences for Barre Street, Langdon Street, State Street, and Main Street and land use priorities throughout the Downtown Core.

RESULTS

A word or phrase to describe your existing downtown experience:

- Pleasant
- Car and truck filled
- homelike
- scattered
- sad
- Better in summer, spring and fall and worse in winter
- familiar
- community
- bustling
- Quaint but vibrant
- Fine
- stressful if in car, pleasant if walking
- enjoyment but feeling it could be more
- Car centric
- automobile-centric
- Familiar
- Montpelier is my place of business
- Positive experience
- Car-centric
- Acceptable
- Disappointing
- Comfortable
- familiar and home field
- historic walkable community
- Convenience
- Too much space devoted to cars
- No public green space along river — downtown corridor has "back to river"
- sundown town
- Friendly, Quirky
- tired
- Quaint
- Tired
- Quaint
A word or phrase to describe your desired downtown experience:

- fewer cars more people
- car and truck free - walkable
- homelike
- diverse
- excited
- beautiful
- streetscape less about cars
- Quaint but MORE vibrant!
- Engaging
- stimulating
- pride
- Pro-human
- more welcoming
- Well-designed
- Plenty of parking and places to stay for visiting customers
- Positive later day experiences
- Pro-human
- Vibrant
- Diverse and alive
- Fascinating
- familiar and home field
- historic walkable community
- Maintain historic small downtown
- Better accommodation of people on foot, on bikes, etc. Less threat from cars pulling in and out of blind driveways across sidewalks or pulling in and out of on street parking. Allow people to shop without needing to be on guard
- River promenade with covered farmers market pavilion.
- vibrant
- Friendly, Yet Sophisticated
- vibrant
- Sustainable
- Lively and engaging interesting fresh
- Integrated mobility
What about downtown Montpelier should be maintained?

- its environment and historic feel
- the distinct architectural style
- small scale
- walkability and public spaces
- historic storefronts
- Walkability and local businesses and services
- green
- sense of community and roots in history
- pedestrian focus
- Small town feel
- The farmers market on state st
- trees, broad sidewalks, historical buildings, unique shops, sitting places, kids
- character of the buildings, eclectic mix of stores and activities
- Sidewalks, open space
- sidewalks and businesses

- Walkability, farmers' market, sidewalk activity, historic storefronts, scale
- The downtown hub for socializing and community fun
- pocket parks
- sidewalks, crosswalks, density
- Walkability
- walkable, small scale, historic
- Friendliness
- lack of modernity. keep the unique feeling. appreciate the fact Montpelier is the capital of the whole state
- scale and historic nature
- Historic integrity and size
- Many shops and storefronts. Trees.
- The open spaces on each side of the new bike/pedestrian bridge should become parks and outdoor theater space. Public restrooms and food
vendors at the site of the new farmers market pavilion complete the picture. The town can now have summer day camps there — theater and art, along with access to the river for water sports.

- public areas for gathering, fusion of the natural and made

- The Scale: NO HIGH RISES
- walkability
- Vibrant stores, the look & feel of a historic New England Down town.
- Not sure what this means
- It's walkability and small shops

What about downtown Montpelier should be changed?

- mass transit, fewer cars
- The congestion of traffic
- not much at all
- more bathroom facilities less land dedicated to parking spaces more public art, more bicycle parking facilities
- empty storefronts
- vacancies
- pedestrian and bicycle experience
- add quality bikeways; put people along the riverfronts instead of parking lots

- More greenspace
- We need better parking for visitors
domination of cars, broken sidewalks, more road space for bikes
- more green space! more focus on the rivers!
- Too much parking. Not enough space for people
- fewer cars and less on street parking
- not enough parking
- Increased pedestrian amenities, well-accented crosswalks with different surfaces,
safe bicycle passage through downtown, too much space devoted to parking lots, if we must have parking lots let's make them look attractive!

- The fools who want to close the streets
- intersection lights near Shaws, add bike paths
- higher density, better bicycle infrastructure, more open public space
- Fix the abomination that is City Center
- cut back on auto/truck traffic
- Reduce traffic
- nothing
- Traffic and congestion
- Repair infrastructure properly, particularly the streets

- Remove some of the access drives that cut across sidewalk on Main St. Reduce on street parking. Add trees
- No new hotel and parking garage. Revitalize the rivers Confluence that brought settlers here when Montpelier was founded
- more opportunities to recreate and more of an embrace of the natural environment
- MORE PARKING
- Sidewalks widened
- Unorganized unattractive storefronts
- More access to the river, more walking paths, more bicycle infrastructure
Barre Street Priorities

Barre -- Maintaining On-Street Parking

Barre -- Enhancing Pedestrian Flow

Barre -- Enhancing Bicyclist Experience

Barre -- Integrating Green Infrastructure

Barre -- Public Outdoor Space

Barre -- Private Outdoor Space

Barre Street Comments

- Barre St has long been unattractive hard surfaces and deserves an economic infusion. It is demographically a poverty area. Adding better green spaces thereby making it a desirable place to be will help transform the neighborhood.

- The focus of Barre Street should be connection to Sabin/co-op area. More fun small businesses on this street would be great, but not displacing low income housing.

- we should prioritize safe cycling and cycle parking throughout the city
• Avoid long duration vehicle backlogs on Barre St and new parking lot exit at the Barre and Main intersection. I favor a traffic circle.
• Barre Street is an important pass-through as well as neighborhood.
• On-street parking on this more residential street with less access to parking lots should be retained.
• Remove parking from one side to add bike lanes? However, this may require some additional parking nearby for residents who currently rely on that parking. Could off-hours parking be made available at Stone Environmental or along Stone Cutters way? Barre St. is not the street that most needs more outdoor dining/congregation spaces.
• I have heard barre st called the "bad" part of town. I live on it. I do not understand that perspective...I think we need a better rec center. The current one is only good if you like basketball. I think what's been done in front of the senior center is beautiful and greatly appreciated. Blanchard Park is one of my favorite places too but there needs to be more oversight of it bc its constantly vandalized by kids. Take care of the parks you already have before making new ones
• Take steps to reduce through traffic on Barre Street by moving it back to Berlin/River Streets
• I am not sure how the pedestrian flow could be enhanced, though I would love all sidewalks to be concrete and not made of street pavement. I am in favor of more outdoor seating AS LONG AS IT DOES NOT TAKE UP PARKING SPACES. Also, parklets, if they are to continue to exist, should cost the same as indoor square footage, not the same as parking a car all day.
• Large trucks should be prohibited from Barre Street between Main and Granite Street. I cannot figure out why 18-wheelers bringing supplies to Coop and Allen Lumber continue to go through the intersection of Barre and Main Street. Since they can't figure it out on their own, they should be forced to use Pioneer Street bridge. That is why it was built to the specs that it was built to!
• Increase density and walkability/bikeability to downtown. Create off-street parking to offset loss of on-street parking.
• Turn downtown to its valued North Branch River
• Barre Street is a thoroughfare neighborhood not a place to congregate. It needs some cleaning up.
• Public Spaces more and more appear to attract itinerants, ne'er-do-wells, and beggars. Their proliferation is bad for
• our city. Effective efforts need to be made to mitigate the problem.
• In winter be sure people can park and walk. Sidewalk and street parking maintenance has been poor at best
State -- Maintaining On-Street Parking

State -- Enhancing Pedestrian Flow
State -- Enhancing Bicyclist Experience

State -- Integrating Green Infrastructure
State Street Comments

- I favor covered outdoor eating along this area. Also improve the use and appearance of the buildings.
- State Street is long and multi-purpose, with a State focus and a City focus. The City focus should invite participation from State employees. The State focus should invite participation from all Vermont's citizens.
- Some level of on-street parking should be retained, but increased segregation of bicycles and cars, better traffic flow, and wider pedestrian areas should take priority.
- State St. works fairly well for pedestrians. It would be great to have additional outdoor dining that does NOT put diners next to parked cars or moving cars. Green infrastructure would ideally be incorporated into every project.
- Why would outdoor seating be a priority when for most of the year everything is buried in snow?
- Continue to move on-street parking to off street locations; utilize more of the on-street parking for parklets and green spaces.
- Increase walkability/bikeability for all level of users. Highly trafficked by children on bicycles/scooters/skateboards/etc going and coming to school. Increase cost of parking to generate more turnover of spots and discourage daylong parkers to benefit downtown businesses.
- Protect pedestrian space. Give autos and trucks disciplined but limited access.
- The river should be the focus of new outdoor congregation and seating spaces. The town has ignored its waterfront for too long.
- This and downtown main are our hub. Needs to be user friendly and open. No more sparklers.
- Same comments apply as earlier about the dangers of making our downtown to attractive to congregating panhandlers, itinerants, etc. We need a plan for what to do about them before embarking on new spaces to congregate.
- Unfortunately seating in state st has increased homeless people setting up residence in front of shops.
Langdon Street

Langdon -- Maintain on-street parking

Langdon -- Enhance Pedestrian Flow
Langdon Street Comments

- Langdon Street has a slower pace which is good. The trucks come in the morning for deliveries and then there are few during the day. It is narrow and dark, not sure that parking on both sides of the street is advised. Eliminating parking on the north side would free up space for green plantings and a place to congregate.
- I don't have a strong point of view on Langdon St. Perhaps a pedestrian mall?
- Langdon Street is a perfect protected space for outdoor cafes, etc.
- Not sure that a lot of changes are necessary for Langdon Street. As an out-of-towner that lives to the North, I frequently park on this street when making quick stops in the downtown, particularly since there's very limited parking on Elm Street for picking up take-out from area restaurants.
- Langdon already functions somewhat as a shared street. Make it truly a shared street, with even slower speeds (5 mph), curbless design, plaza street feel. This would be the location to
pilot green infrastructure such as permeable pavements. See examples such as https://nacto.org/case-study/cambridge-shared-streets/

- I am in favor of removing on street parking ONLY IF there is a reasonable off street parking alternative
- Move off-street "warehouse" parking (employees?) to other locations and make room for 30 minute customer parking in those locations. Remove all on-street parking.
- Close off to all car traffic. Make it pedestrian/bike only.
- Some of the new outdoor dining spaces are now over-aggressive.
- Make this our Church Street aka Burlington.
- Same comments as previously about dangers of new "congregation" spaces, attracting itinerants, panhandlers, etc. Also, in my opinion, bicyclists do not belong on State Street. Probably not Main St. either.
- The outdoor area by down home restaurant is huge and I am surprised how fast it went up
Main Street

Main -- On-Street Parking

Main -- Enhancing Pedestrian Flow
**Main Street Comments**

- Main Street like State Street has a high number of trucks and cars. Cross walks are dangerous. Although Main Street has larger established trees there are still areas that could use more green plantings. Especially near the new DownStreet French Block building. Residents come outside to sit and there is no place to do so. There is a lot of hot sidewalk in the summer that is not a desirable place to relax. A dedicated bike lane is important. Main Street is dangerous for bikes!!

- Try to reduce vehicle flow backlog on Main St. I favor traffic circles.

- Main Street is an important transportation corridor as well as retail space. It would be great if it could entice residents and visitors to spend more time downtown rather than just pass by to somewhere else.

- Some level of on-street parking should be retained, but increased segregation of bicycles and cars, better traffic flow, and wider pedestrian areas should take priority. With the patio area in front of City Hall available, any increase in public seating spaces should take a back seat to
other needs, though traffic slowing techniques that include landscaping and green stormwater infrastructure would be beneficial.

- Can we please somehow seek to convert the parking lots along the north branch to offer riverside biking / dining experience? Use some space to separate this from cars with either trees or vines growing on a fence. Here's some examples of how to add narrow shade / screening: https://greenscreen.com/?portfolio=valley-metro-light-rail Again, this is a location to prioritize green infrastructure.

- Better bikeways around the town would be nice

- Push "warehouse" parking further out in the city to make room for customers and short-term parking in off-street lots. Reduce onstreet parking and replace with parklets and greenspaces.

- Need to fill spaces like Black door and the asiana house

- Many children take this route on bicycles/scooters/skateboards to and from school. Roads should be safe for all levels of users, including school children. Calm traffic to no more than 20 mph in downtown core area to increase safety. Remove unsafe parking on upper portion before and after school street.

- Upgrade night-time street lighting

- Same comments as previously re conjuration spaces.

- This street is central to Montpelier and the impression it makes to visitors- a large focus should be put on what this st displays and it's personality
Land Use -- Community/Civic/Arts
Main Street

Response Statistics

33 responses

Which concept do you prefer?

- Concept A: 52%
- Concept B: 48%
2. Concept A - What did you like best about that concept?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>concept A seems more about place making than B. If developed A will have more possibilities for being an vibrant space, especially if is set up for activities, not just a blank open paved plaza. Consider a fountain/public art</td>
</tr>
<tr>
<td>My most memorable in-town experiences occurred in cities where the emphasis was on pedestrians in the core and parking on the outskirts. Parts of Savannah, Georgia, and Québec City come to mind.</td>
</tr>
<tr>
<td>Generally more attractive and inviting while still providing for a functional business district.</td>
</tr>
<tr>
<td>Pedestrian and bicycle scale. Open, greenish, and semi-public (?) spaces.</td>
</tr>
<tr>
<td>Pedestrian safety and comfort should be top priority.</td>
</tr>
<tr>
<td>better ped. experience.</td>
</tr>
<tr>
<td>I like the separate bike lanes, added trees, and the plaza type feeling in front of City Hall.</td>
</tr>
<tr>
<td>Wider sidewalks, large trees, limited cars</td>
</tr>
<tr>
<td>Trees and more focus on pedestrians.</td>
</tr>
<tr>
<td>Pedestrians are good for commerce!</td>
</tr>
<tr>
<td>Large pedestrian areas with space for open air restaurant seating.</td>
</tr>
<tr>
<td>wider tree belt area in concept A concept B has an odd experience for bikers to be sharing the road on other streets downtown, then switch on Main Street to be above the curb, and on the interior of parked cars. I think there will mostly be pedestrians using the &quot;bike lane&quot; in option B.</td>
</tr>
</tbody>
</table>
### 3. Concept B - What did you like best about that concept?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected bike lanes - I am not a strong biker, but I have interest in doing it more. Shared lanes with cars are too intimidating for me to try biking through downtown.</td>
</tr>
<tr>
<td>Balance between transportation and pedestrian...remember, most people who work here cannot afford to live here! We need to get to offices and out.</td>
</tr>
<tr>
<td>It allows for parking</td>
</tr>
<tr>
<td>Traffic flow seems more realistic</td>
</tr>
<tr>
<td>Supports the businesses on main street</td>
</tr>
<tr>
<td>Trying to be something we aren't- like Boulder Colorado is pointless. We don't have the population to support or afford it. No university or high tech companies, no Rocky Mountain biking/sightseeing/hiking. No bike path from boulder to Denver/golden. We are a small city. We need a parking garage, new hotel and more commerce. We need to draw enough to support our small city lifestyle. Stop trying to force everyone into a &quot;correct&quot; mold. Acceptance of all, not pushing &quot;others&quot; out would be nice. Our city is greying- trying to bring in prosperous growing families is good. Elders built this place.</td>
</tr>
<tr>
<td>Dedicated bike lane while preserving onstreet parking.</td>
</tr>
<tr>
<td>Dedicated bike lanes separated from auto traffic lanes</td>
</tr>
<tr>
<td>Seems like a reasonable compromise.</td>
</tr>
<tr>
<td>Separated space for bikes - as long as intersections/driveways are also kept safe for kids on bikes</td>
</tr>
<tr>
<td>Protected bike lanes!</td>
</tr>
<tr>
<td>I like the protected bike lanes on Main Street. Pedestrian scale lighting is essential in downtown.</td>
</tr>
<tr>
<td>Protected bike lanes</td>
</tr>
</tbody>
</table>
The bicycle infrastructure. Currently, we don't have a safe space to ride North-South in Montpelier. We have a lovely shared use path taking us east-west, but again, nothing North-South that intentionally allows space for cyclists.

I liked that bikes did not have to share a lane with cars.
4. Additional comments?

Response

I am worried about snowplowing issues with the plaza in front of city hall in concept A - it's not worth doing something like that if it makes plowing harder. I'm also not really sure how that space would be used, since shutting down traffic on main street is a real headache - I would be supportive of shutting down state street for events, but not main street.

Solution to transportation needs would be to add FREQUENT shuttles in and out of downtown.

Don't remove parking. Add more parking spaces.

Downtown businesses want more parking, a failure to address this will fail in any plan.

1. Is anyone looking at the fact that during certain times of day it is impossible to get around town how it is?  2. Realistically, it can snow here from October until late April. Bikes, though I do love them, are not safe. How are you going to keep these areas clear with the snow? The city can barely maintain what they have. Have you worked up cost estimates for how much it is going to run you to keep those areas clear and safe for pedestrians? What about the dedicated bike lanes? How does that work with an Nor'easter?

I love that there could be growth with history.

I am one of Montpelier's elderly residents. I live within a 12 minute walk of State and Main. I'd prefer a safely walkable bikeable city. But there does need to be parking and the one garage won't do. Perhaps on-street disabled parking and several smaller scale garages dispersed in the areas immediately adjacent to downtown or even as infill--say behind city hall, somewhere near-in on Barre St. and behind the post office and Vt Mutual. (Behind the PO could even become something that rejoined the streetscape if, say, there were two levels of parking with a level of apartments on top--or a green roof park. But unless parking is built into the plan, it will be divisive and compromised and the immediately surrounding neighborhoods will experience even more parking congestion as all the streets are lined with cars parking for the day--free. Comment continued in the State St. survey.

As one who lives on the East side and travels to and from the West, I don't see any provision for alternate routes through/around the center.
One of the thing I loved about the old cities of Europe that are so bike and pedestrian friendly is all of the old trees. I would be sad if the existing trees in the street were killed as part of this effort and replaced again with baby trees. Try to save all the trees you can!

Even with protected bike lanes, keep sharrows on through lanes to show that bikes are allowed there as well.

I'm a cyclist who bikes through downtown frequently. I'm already comfortable biking there, traffic is calm enough I've never had a problem.

Careful consideration of pedestrian flow in downtown is very important and should address pedestrian lighting, reflective crosswalks, visibility (no parking spaces to close to crosswalks, particularly mid block crossings.

Love the City Hall plaza idea!
State Street

Response Statistics

30 Responses

1. Which concept do you prefer?

- Concept A: 62%
- Concept B: 38%
2. Concept A - What did you like best about that concept?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wider sidewalk, the furniture and trees!</td>
</tr>
<tr>
<td>It is place you are in rather than a space you pass through.</td>
</tr>
<tr>
<td>More vegetation, trees and planted beds.</td>
</tr>
<tr>
<td>Table and cobbled surface slows people down when they get to the bridge. More trees and vegetation</td>
</tr>
<tr>
<td>Not sure</td>
</tr>
<tr>
<td>State Street is a heavily trafficked corridor. An approach that &quot;calms&quot; the activity between the business and capital districts could be very beneficial.</td>
</tr>
<tr>
<td>Wider sidewalks than concept B</td>
</tr>
<tr>
<td>Pedestrian use, comfort and safety should be top of the priority list.</td>
</tr>
<tr>
<td>better pedestrian experience and tourist area at the bridge</td>
</tr>
<tr>
<td>More aesthetically appealing.</td>
</tr>
<tr>
<td>It's the State Capital, it should look nice.</td>
</tr>
<tr>
<td>I like the traffic calming with emphasis on pedestrians. I also like the public space created by Rialto Bridge and the green street trees provided more space.</td>
</tr>
<tr>
<td>Trafic calming</td>
</tr>
<tr>
<td>The traffic calming and Rialto Bridge cobblestone design.</td>
</tr>
</tbody>
</table>
Liked that there were equal widths given to both sides, B seems unfair to businesses on the opposite side
3. Concept B - What did you like best about that concept?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bike lanes</td>
</tr>
<tr>
<td>Balance between transportation and pedestrian...remember, most people who work here cannot afford to live here! We need to get to offices and out.</td>
</tr>
<tr>
<td>Balance between transportation and pedestrian...remember, most people who work here cannot afford to live here! We need to get to offices and out.</td>
</tr>
<tr>
<td>Allows for some parking</td>
</tr>
<tr>
<td>That it won't kill downtown business. The lack of parking already makes me dread going downtown.</td>
</tr>
<tr>
<td>Support businesses on state street</td>
</tr>
<tr>
<td>Like the Rialto seating area, low-key traffic</td>
</tr>
<tr>
<td>Like the Rialto seating area, low-key traffic</td>
</tr>
<tr>
<td>Smooth pavement for bicycles</td>
</tr>
<tr>
<td>ability to park someplace between the north branch river and Main Street</td>
</tr>
</tbody>
</table>
4. Additional comments?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please fix water issues first</td>
</tr>
<tr>
<td>Solution to transportation needs would be to add FREQUENT shuttles in and out of downtown.</td>
</tr>
<tr>
<td>Don't remove parking. Add more parking spaces.</td>
</tr>
<tr>
<td>With pedestrians the flow of traffic should be blocked leading into a crosswalk from on coming traffic, not after.</td>
</tr>
<tr>
<td>I think it would be important to know what the current status of the garage is. Frankly, this impacts how I'm thinking about the proposed plans</td>
</tr>
<tr>
<td>Wilaiwan's is not a Tavern!</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Highways 12 and 2 merge on State Street. Desirable to restore the small town feel rather than that of a thoroughfare.</td>
</tr>
</tbody>
</table>

I'm the older resident who wrote a comment about favoring the A concept and outlining some concerns and possibilities about parking. This is a continuation of that comment at a little more conceptual level. If something like concept A is to work, and assuming, as the project does, that the core downtown is the focus, that focus nevertheless needs to think of the town as something like a large campus. Removing parking from downtown streets will work to everyone's benefit as long as parking remains convenient. Various ideas have been floating around for decades. But the concepts are clear: increase the cost of downtown day-long parking, monitor short-term downtown parking, institute permit-based residents only parking in the adjoining neighborhoods, incentivize satellite lot parking by providing frequent shuttle service (electric tram cars?), divert truck traffic, especially "passing through" trucks, etc.

I also like no on street parking on State Street east of Rialto bridge. That section of State Street is...
dangerously congested with on street parking.

Again, good compromise between mobility and 'amenity'

Pavers, Belgian block, and whole lanes of rough surface discourage bicycling.

Current sidewalks don't seem overly narrow and businesses like positive pi have successfully used parking spaces (bought them) for outdoor seating in the appropriate seasons, which could still happen with concept B.

Although bike riding on cobblestones is terrible!
**Barre Street**

**Response Statistics**

18 Responses

1. What did you like best about this concept?

<table>
<thead>
<tr>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>Makes the connection and widens the narrow sidewalks</td>
</tr>
<tr>
<td>Concept A, I like the wider sidewalks!</td>
</tr>
<tr>
<td>This road is too narrow for 2-way traffic. No choice to loose one side of parking. Not sure how it would be widened otherwise.</td>
</tr>
<tr>
<td>None of it.</td>
</tr>
<tr>
<td>Nothing, Barre st is congested, especially in winter with snow, Keep the street as is. If a change is needed do alternate parking based on times so traffic and or bike lanes can navigate this street.</td>
</tr>
<tr>
<td>I like the 5' buffer between the street and the shared use path</td>
</tr>
<tr>
<td>I guess the improvement is the organization of parking to one side of the road limiting the dodging and darting. I disagree with the design but you're still a wonderful, beautiful, amazing person :)</td>
</tr>
<tr>
<td>It makes sense to have parking only on one side of Barre street, it's too narrow for parking on both sides.</td>
</tr>
<tr>
<td>Parking on one side only makes sense. North side seems logical since more lots on South side.</td>
</tr>
<tr>
<td>As is, it's pretty tight for 2-sides parking and 2 travel lanes. This should be safer, tho' Senior</td>
</tr>
</tbody>
</table>
Center parking is a problem

connection to the bike path, and traffic quieting...

That there would only be parking on one side of the street! I am a resident of Barre St and it drives me absolutely bonkers - especially in the winter - to deal with parking on both sides. I think this could greatly improve traffic on Barre st.

Eliminating parking on one side of the street and improved lighting. Both are safety issues with the current design and very much needed.

I like the connection of Siboinebi Path from Rec center with shared use path to Main Street. I also like the addition of green space on Barre which is lacking a lot of green infrastructure.

Protected bike lanes!
### 2. Additional Comments?

<table>
<thead>
<tr>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>Any plans that involve taking away parking spaces are bad. The new parking garage for the hotel that the tax payers were duped into paying for isn't going to help. Don't remove parking. Add parking.</td>
</tr>
<tr>
<td>This will do little to nothing to alleviate the current traffic issues on Barre street. Any chance anyone looked at making Barre Street one way with East State running the opposite way? Both streets are places continually are a hazard. Thanks for your efforts to beautify our town.</td>
</tr>
<tr>
<td>Tying Main and Barre streets together will take more than lighting. What is the plan for connecting shared path with Main and Barre streets?</td>
</tr>
<tr>
<td>Don't sacrifice Barre St. just because much of it was--and still is--once working-class housing. Barre Street actually offers the greatest possibility for smallish off-street parking solutions as well as strong potential for neighborhood development, especially if the river becomes a more prominent shared site/resource in the longer term.</td>
</tr>
<tr>
<td>The Shared Use Path should focus on continuity from West to East; help tourists feel like they know where they're going. (The back alley next to the Rec Center does not feel right.)</td>
</tr>
<tr>
<td>this will be a difficult street to lose parking but also may reduce winter collision issues when snow piles make driving lanes too narrow. In general more on snow storage would be helpful throughout all these plans.</td>
</tr>
</tbody>
</table>
Langdon Street

Response Statistics

21 Responses

1. Which concept do you prefer?

- Concept A: 85%
- Concept B: 15%
2. **Concept A** What did you like best about that concept?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makes the street more European urban and less focus on vehicles.</td>
</tr>
<tr>
<td>More pedestrian/tourist friendly</td>
</tr>
<tr>
<td>Use of the street for events. This will also limit the traffic trying to turn in and out of the main routes. Don't need the street (only for deliveries and services of businesses).</td>
</tr>
<tr>
<td>Flexibilty</td>
</tr>
<tr>
<td>Make Langdon street more for pedestrians</td>
</tr>
<tr>
<td>Keeping parking is important especially as we age. As long as we have several seasons (4,5,6) we need to be able to get close to downtown and not schlep in ice/snow; heat/rain to access services. Having special events has always been part of Langdon street</td>
</tr>
<tr>
<td>Flexible parking, curbless and shared street are interesting ideas for maximizing the narrow road.</td>
</tr>
<tr>
<td>Good place for more pedestrian emphasis, still river view and safer walking</td>
</tr>
<tr>
<td>While it may be harder to park closer, the loss of spots is greatly outweighed by the experience when walking around town with the new concept.</td>
</tr>
<tr>
<td>will make a nicer place for markets and events</td>
</tr>
<tr>
<td>It feels safe for all users.</td>
</tr>
<tr>
<td>I like the emphasis on the pedestrian experience. This is a narrow road anyway, so parking and traffic make it a difficult road to drive or walk. Getting rid of curbs makes it great for events.</td>
</tr>
<tr>
<td>Woonerf concept</td>
</tr>
<tr>
<td>Can utilize full street!</td>
</tr>
</tbody>
</table>
I absolutely love the idea of a Woonerf. This makes so much sense on this street. It's very uncomfortable having parking there and doesn't feel comfortable as a pedestrian in a number of locations. I understand that businesses would want vehicular access and it could even make sense to allow short-term parking *15-30 minutes* to allow customers to pop into a store while running an errand.

I like pedestrian malls
### 3. Concept B What did you like best about that concept?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>No parking</td>
</tr>
</tbody>
</table>

I don't trust people to figure out how to park where the parking spots are not clearly delineated (A). But I do think the sidewalks should be widened.

Not too over the top.
### 4. Additional comments?

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't actually prefer either. Don't take away parking. Add more parking.</td>
</tr>
<tr>
<td>Close Langdon from parking 10am-12pm.</td>
</tr>
<tr>
<td>I think shop owners should have a weighted score on this survey. I, however, am not a shop owner. We have to protect our downtown small businesses.</td>
</tr>
<tr>
<td>Make better living spaces in the buildings on Langdon street</td>
</tr>
<tr>
<td>Some concern on how the above ideas play out in winter with its hazardous driving conditions.</td>
</tr>
<tr>
<td>Pedestrian safety and comfort is paramount</td>
</tr>
<tr>
<td>Shouldn't parking be on the right (north side) of street if it is a one way street with parking only on one side? counter-intuitive to park on the left on a one-way.</td>
</tr>
</tbody>
</table>
PUBLIC ENGAGEMENT SUMMARY

On August 17 and September 7, 2019, SE Group hosted a public engagement session at the Montpelier Farmers Market. These sessions allowed for community members to drop-by and learn about the project and to provide their feedback on streetscape and land-use priorities. In addition to the dot exercises, attendees could also provide comments on boards and in the comment box. This document will be updated as the public engagement process continues.

RESULTS

Farmers Market Meeting 8/17/2019

A word or phrase to describe your existing downtown experience:

- Loud, car filled, not bike or pedestrian friendly
- Friendly, good size and density
- I ride my bike on the street and feel fine about it
- Love it
- Love it, I would shop here more if parking were free. Instead I often go to Waterbury
- Great to walk
- Lovely for business owners/shoppers otherwise a little inaccessible
- Congested, exclusive, inaccessible
- Love it but cars need to be controlled
- Love our vibrant downtown, local businesses, human scale experience
- Nice but too much parking space=dead space
- Don’t shop here. Too difficult to find parking.

A word or phrase to describe your desired downtown experience:

- Inclusive
- Livable, walkable, bikeable, playable, more trees
- Welcoming
- Bikeable
- Vibrantretails
- Bike friendly/safe
- Parking garage
- Fewercars
- Human-scale, friendly
- The right scale
- More night life
- Walkable
- More music
- Bikeable
- Walkable
- Local housing
- Local jobs
- Livable wage for all
- More parking
- Walkable
- Tax empty street fronts
- Fill the empty stores
- Accessible
- Vibrant
- Accessible
- Locally owned
- Collectively owned
What about downtown Montpelier should be maintained?

- Architecture
- Trees
- Benches
- Dog-friendly
- Walker friendly
- Streets closed to traffic for farmers market
- Trees
- Pedestrian spaces
- Shade
- Places for anyone (not just customers) to sit, eat, talk
- Restaurants/stores- vibrant feel

What about downtown Montpelier should be changed?

- Roads leading into town- dangerous for bikes (upper main) potholes
- More free outdoor seating
- There should be welcoming spaces for all of us. This includes folks who are homeless and those of a lower income.
- We need a better pedestrian and bike experience. Less emphasis on cars. I am car liberated.
- Third space/green space
- There are more downtown residents, think of downtown as their yard and gardens
- Add green and growing things
- Concert Hall, a full professional arts space. We are the only state capital that doesn’t have one!!
- We need to deal with homelessness issue, safe places for people to charge appliances, get water, sleep- for free. Paid for by the community taxes.
- More bathrooms
- No plastic in stores
- Festive night lighting
- Fewer warehouse parking
- Better use of waterfront – less parking lots
- Ability to bike downtown
- Icy sidewalks
- Reduce car impact
- More public hang out sports
- Public water and electrical outlets
- Free places to spend time and get to know other community members
- Biking safety
- Housing
- More trees/permeable pavers
- Build the garage and hotel

Land Use

- As on-demand micro-transit is able to provide mobility for Montpelier Residents who have traditionally warehoused their cars downtown parking (65% downtown) will be freed-up for housing (affordable and market value) open space and new commercial ventures.
- With great open space beyond the downtown core, it is not a priority in the core-we need income producing use.
- Need public infrastructure for housing insecure folks
  - Water fountain
  - Electrical outlets
  - Sleepable areas
Streetscape

- Montpelier will flourish as we add more green infrastructure, bike infrastructure, and walking paths, 3rd space, river access with a developed river walk
- Public pocket parks; pedestrian walks on riverfronts; riverfront parkland to scale, not ‘mini’
- Reality is that the town population (and taxpayers) is getting older and need to be accommodated
- Congregation space public only—not private
Project Outcomes - Land Use

Which of the following land uses for potential infill should be prioritized in the downtown core?

Housing
- Low-Priority
- Neutral
- High-Priority

Open Space
- Low-Priority

Retail
- Low-Priority

Office
- Low-Priority

Community/Civic/Arts
- Low-Priority

A CAPITAL IDEA! MONTPELIER DOWNTOWN CORE MASTER PLAN

Project Outcomes - Streetscape

Which of the following streetscape components should be prioritized in the downtown core?

Maintaining on-street parking
- Low-Priority
- Neutral
- High-Priority

Enhancing pedestrian flow (spacious dedicated walking space)
- Low-Priority

Enhancing the bicyclist experience (dedicated accommodations for increased comfort/safety)
- Low-Priority

Integrating green infrastructure (rain gardens, stormwater planters, permeable pavers)
- Low-Priority

Creating new vibrant congregation spaces (outdoor dining, seating space)
- Low-Priority

MORE GREEN SPACES/GARDENS
Comment Box

- Please make downtown as accessible as possible. Re-paving sidewalks would be a good start.
- Cars need to go
- We need a new bottle redemption center. The Grossman’s building was be a good spot for a redemption center and low income/shelter housing. Contact Eileen @ down street
- Build the garage/hotel
- More green space please, where the old beverage store was could be a green park
- All project outcomes are desirable, not a zero sum. But finding the right balance is the trick.
- PLEASE don’t eliminate parking spaces! The older we get the more people will not be able to bike/walk
- Showing the damn parking garage STINKS Don’t do it.
- Move Pho building to gas station property and infill around it
Farmers Market Meeting 9/7/2019

A word or phrase to describe your existing downtown experience:

- Community Driven
- Too expensive --housing costs—gentrification
- Small town-vibrant-yet struggling
- Community oriented but tired
- Love the business community
- Love it can walk everywhere
- Too many parking lots
- Friendly, walkable, expensive
- Expensive gentrification

A word or phrase to describe your desired downtown experience:

- Trees planted every 15-20 feet like in Barre on state and main. Plant large trees that grow tall, not the ones that take years to grow. Barre made an investment in trees and it radically altered downtown
- A continuous bike path and safe intersections for cyclists
- Community and environmentally driven
- The awesome people and community
- Indoor recreation center
- Less car spaces
- More flowers
- A dog run somewhere within reach (large and small separate)
- Higher density (low income housing), walking, bike paths, gathering places. Less focus on cars. Architecture we can be proud of in 100 years
- Affordable, walk/bike focused, people over profit
- Affordable for non-rich people
- Community facilities (YMCA)
- Parking
- More high-density downtown housing on parking lots, consolidate lots on river into decks
- River access
- Safe bike riding
- Parks
- More car free spaces emphasize walking and biking

What about downtown Montpelier should be maintained?

- Closing the street off for farmers market
- Indie shops
- The integrity of the historic buildings
- Hubbard park
- Walkability
- Love the no parking sign put up so pedestrians can cross Stonecutters Way safely thank you!
- Locally owned, unique businesses

What about downtown Montpelier should be changed?

- More space to enjoy river
- More space dedicated to the local/natural ecosystem
- Adorable vegan healthy food
- Fresh water – drinking fountain
- Create safe/permanent bike lanes
- Remove the dangerous parking in front of post office and elsewhere
- Rec center, basketball, skate park
• Have shops open later, they are all closed by the time we get home from work
• Downtown works! Visitors always say how great it is. What we need to do is open up some of the state land that is used for parking.
• Shuttle into town more often from Waterbury
• Pedestrian, bicycle gateway arch bridge over Main Street

• Water safety!
• Panhandling outside stores
• More trees
• Change hanging plant colors, red white and blue is so tired. Don’t have to have all same flowers or color schemes in all barrels and hanging plants.

Land Use
• Can you say on the poster exactly what infill means?
• Every night, all year, these parking lots are empty. Let local folks park for free at all times
• Housing if affordable only
• Affordable housing
• Montpelier is becoming all rich white people
• An open door, a roof above, safe homes for all in the power of love
• More housing

Streetscape
• Dedicated, year-round space for farmers market
• This is your town, make it work for you.
• Farmers market=99% white, think about economic racism
• Outdoor restaurant seating
• Pedestrian walkway
• Parking garage – underground
• Bring back car share or create a new one
• State and Taylor stop sign or light
• Main and Memorial needs ped over or underpass
• Langdon street pedestrian mall
• No more roundabouts
• Some parking but not necessarily on street
• No gentrification
• Try a stop sign solution (4-way) at School and Main before roundabouts. Remove 3 parking spaces at this end of barre street. Make 2 lanes so those turning right can go instead of traffic backed up waiting for someone to turn left.
STAKEHOLDER MEETING NOTES

On September 24, 2019 the Montpelier Downtown Core Master Plan Project Team hosted a series of stakeholder sessions. These sessions included a brief presentation about the project and a facilitated discussion about streetscape improvements and land use in the Downtown Core. To receive the most specific feedback possible, participants were asked to provide recommendations concerning individual streets and parcels.

Representatives from SE Group, City of Montpelier, Watershed Consulting, and Stantec attended the meeting and the stakeholders included business owners, City staff, City councilors, and various city coalitions.

RESULTS

The stakeholder meeting notes have been condensed and thematized. Important areas of discussion included:

Parking: Ideas and concerns related to parking surfaced repeatedly throughout the day. Conversations included ideas about shuttle incentives, weekend vs. weekday parking strategies, wayfinding plans, and finding a balance between pedestrian safety and vehicular convenience. Some local business owners stressed the importance of maintaining convenient short-term parking to serve the local population, which includes people with limited mobility, while some thought limited on-street parking in the core area was fine. A core takeaway from this discussion was that future streetscape strategies will need to consider multiple user groups, more diverse transportation facilities, and the operational challenge of changing seasons.

Public Spaces: Participants voiced a need for more public spaces in downtown Montpelier. As developable land isn’t readily available in Montpelier, the conversation focused around the thoughtful reuse of existing open spaces and creative strategies to carve out new public space. The idea of restoring a more robust vegetative buffer along the river and its tributaries combined with new pathways was discussed as a way to improve the river’s ecology and enhance the pedestrian experience of this natural resource.

Vibrancy: The community input received throughout the planning process has generally agreed on one core tenet: the Downtown Core of Montpelier is a vibrant space with unique character. To maintain and accentuate the character of Montpelier, community members spoke about the addition of public art, artistic lighting, more trees and vegetation, and inviting public spaces. There was a collective consensus that making the pedestrian experience more pleasant would encourage visitors to spend more time downtown.
Stormwater: To comply with community expectations and state and federal regulations, stormwater retention and treatment strategies must be incorporated into future development and planning considerations. During the stakeholder meetings, participants expressed support for creating a holistic stormwater approach that combines retention, filtration, and grey water reuse (e.g., irrigation of street trees). The idea of making these stormwater management practices more readily visible and/or incorporating interpretive signage was well-received.

Walkability/Bikeability: Everyone seemed to agree that the downtown is generally walkable, although some people noted deficiencies in terms of winter sidewalk conditions. Participants in the stakeholder meetings discussed how well-designed pedestrian experiences could enhance the unique character of the city. Some people mentioned concerns for pedestrian safety at crosswalks during nighttime due to inadequate lighting. A variety of opinions regarding the need for improved bike facilities were expressed. Some participants expressed a need for improved north-south bike connections, bike parking, and separation from cars. Others felt that too much emphasis was paid to bicyclists given their relatively limited numbers and seasonality.
APPENDIX - B
Existing Conditions Summaries: Utility Infrastructure, Parking and Stormwater
Existing conditions of infrastructure in the project study area for the Montpelier Downtown Core Master Plan, along with data collected for existing conditions, are described here.

A discussion on infrastructure data availability, existing conditions, and future improvement needs was held with Kurt Motyka (DPW), Zach Blodgett (DPW), Andres Torizzo (Watershed), and Sean Neely (Stantec) on 12 September 2019 at Montpelier City Hall. Topics discussed include combined sanitary and storm sewer, sanitary sewer, stormwater, drinking water, district heat, underground electric and communications.

**Sanitary Sewer, Stormwater, and Combined Sewer**

The biggest infrastructure issue faced by the City relates to combined sanitary and storm sewer. The City worked on separating sanitary and storm sewer infrastructure for ten years. The project study area includes three combined sewer overflows (CSOs) (CSO-01 at State St/Taylor St; CSO-07 at Confluence Park; CSO-08 at Main St/Barre St). CSOs 7 & 8 work together; weirs have been raised at these structures to improve function. The City's estimated cost to separate the three CSOs in the study area is approximately $4 million (out of $6 million to separate all CSOs in the City).

The City undertook a rooftop drain disconnect grant project, addressing the disconnection of rooftop drains from the sewer system. There remain institutional and commercial properties with potential flow reduction. Institutional buildings with remaining rooftop disconnection work to be completed include City Hall (southerly half of roof) and Main Street Middle School (outside study area). If private properties choose not to act based on incentives provided, next steps will include disincentives.

Mitigating volume anywhere in the study area will help upstream flows. The sewer treatment plan is known to have handled up to 12 million gallons during Hurricane Irene, which is an estimated 80% of capacity. No storm event has brought the treatment plant to full capacity. There is usually one storm per year that gets up to 9 million gallons. Storm events lead to combined sewer vulnerabilities after 4.5 million gallons in the plant. This can occur due to short duration events of heavy precipitation or long duration events of light precipitation. The City has begun developing a sewer model and would like to complete it. There is a need for a long-term control plan. Grant money has been secured to install monitoring equipment before the end of this year.

The first priority sanitary sewer line project is to lift a sag, that is almost a siphon, on State Street west of Taylor Street, under an old steam line. There is minimum elevation change (0.003 grade) to the plant. The City wants to line that whole section of sewer pipes back to the plant. Lining these concrete pipes will reduce friction and increase flows.

The City is required to address CSOs, treating or eliminating overflows, under its State 1272 permit. The current City population does not require a Municipal Separate Storm Sewer System (MS4) General Permit.

The City’s approach is to improve stormwater assets that are ready to fail, which increases system capacity, then pursue green stormwater methods. Stormwater infrastructure piping in the study area is primarily corrugated metal installed in the 1980s that is failing due to corrosion, with limited funds for replacement. One exception is the storm pipe under State Street, built in the 1990s, with no current replacement needs. The City stormwater fund is $100,000 annually, which is insufficient for needed system improvements.
The City is embracing new green stormwater methods, like smaller rain gardens and infiltration. Challenges include finding good locations for treatment, like trees (State Street) and bulb outs. The study area is mostly clay soils, with limited greenspace. Stone Cutters Way, College Street, and McKinley Street are the closest streets to the study area with sandy soils. Stormwater drains toward the Winooski River. Detention systems may be more suitable for the study area. Andres (Watershed) described smart controller systems like one being installed for the new YMCA in Burlington, where four detention tanks will be used. Additional funding sources may be available, like the Lake Champlain Basin Program Grant (due in October).

Staff from DPW expressed interest in establishing a stormwater utility to help fund stormwater improvements. There are good models from other jurisdictions that could help the City develop an urbanized stormwater utility model. Challenges include determining who will manage the utility. If managing CSOs through a potential stormwater utility is feasible, that might be helpful. Another stormwater challenge is an unknown number of sump pumps in use.

**Drinking Water**

There are needs for improvement throughout the drinking water system. Total relining is planned for East State Street in 2023. A new water main is needed from Main Street to Elm Street. State Street water lines are in good shape; twelve-inch ductile pipe was recently replaced from Elm Street to Taylor Street. Taylor Street water line was recently replaced. At some point, Main Street will require improvements, but there is no pressing maintenance; it could be relined to prevent disruption (as was done on State Street). All residential neighborhoods need to be upgraded to a larger pipe size. Barre Street has an old water main that was not prioritized as part of the Dufresne study, but it is leaking, although the capacity remains sufficient. Ball clamps added to the Barre Street water main helped to make it more sustainable.

The project team has collected existing conditions data for utility infrastructure, parking, and vehicular circulation within the project study area. Data came from previous project CADD & PDF files, City asset management GIS files, VTrans online data, and previous reports.

**District Heat**

The City needs more customers for its recently constructed district heat system to keep it financially viable. There is some interest on Miles Court, where the City is in discussion with one property owner. There is also current discussion with the Unitarian Church, although district heat would be more expensive for them than a pellet furnace. The church is tax-exempt, so the City can’t provide tax breaks. Some churches have become community centers, then lease the building as a tenant, losing tax-exempt status, but this may not be desirable for them. Originally Main Street Middle School was in the scope for district heat, but they got cut. Apartment buildings are not interested in district heat; they prefer heat pumps, which also cool, and individual meters per unit. The City could pursue other potential customers between State Street and Spring Street.

**Underground Electric and Communications**

Electric and communications utilities have already been brought underground in the core downtown area. The City considered undergrounding electric and communications utilities for Taylor Street, but it was cost prohibitive.
Utility Infrastructure Data

Utilities data covers the whole project study area for drinking water, sewer, stormwater, combined sewer, and underground steam infrastructure. Portions of the study area that are part of the district heat project have data coverage for gas, electric, and communications. GIS files from the City cover the whole project area, while CADD files from previous projects may have more accurate data for certain locations within the project area. Data files collected for utilities infrastructure are listed below.

- CADD Files
  - Recreation Path Design (10691_files)
  - District Heating Project (11258- SP01-ASB.dwg)
  - Resurfacing Project (z12d392_files)
  - (MOWAT files)

- GIS Files (covers full project study area)
  - Drinking water mains, connections, valves, leaks
  - Sewer mains, force mains, manholes, siphons, overflows
  - Stormwater lines, structures, treatment locations
  - Sidewalk polygons, sidewalk center lines
  - Tax parcels (2018)

Parking

Blanchard Lot, behind City Hall, and Pitkin Court lot, adjacent and southerly of Blanchard Lot, need engineered improvements for stormwater and circulation. There are erosion issues from the hill of Blanchard Park. There may be an option to flatten the grade of Pitkin lot and add a second level with access from Downing Street.

Other public parking lots include the lot behind Christ Episcopal Church on State Street, 10 Taylor Street Parking and Carr Lot, also on Taylor Street. Some State employees use the Pit on Governor Davis Ave.

There is a proposed new parking garage structure to be constructed in the downtown core but is currently held up in court.

Parking will be lost on Barre Street with the D&K recommendations for a two-way cycle track connecting Main Street to the shared use path at the recreation center on Stonecutters Way.

Parking meters management web application

Kevin Casey will be providing access to the web application for managing City parking meters. This source provides information about parking utilization for paid metered parking.
Carr Lot Replacement Parking Study (2005)

This study assessed potential sites in the downtown area to accommodate lost or displaced parking due to construction of a transit center at the Carr Lot on Taylor Street.

TIF District Plan (2018) (from SE Group Summary)

The TIF District Plan outlines the design, motivation, and urgency of the proposed TIF district in Montpelier. The plan highlights many examples of private developers who are interested in building in Montpelier but are ultimately deterred by the state of the infrastructure and parking available. The proposed TIF was passed in 2018, allowing several public infrastructure development plans to move forward.

Innovative Capital Economic Development Strategic Plan (2016) (from SE Group Summary)

The Innovative Capital plan states that development in Montpelier has become constrained by cost. The plan explains that while Montpelier can attract developers by leveraging its superior quality, it must ensure that sites are ready to develop, adequate infrastructure is in place, and community amenities are available. Montpelier has been working towards these goals by addressing brownfields, enhancing pedestrian connectivity, building a parking garage, and extending utility lines when possible.

Vehicular Circulation, Traffic, Crash Data

Vehicular Circulation and Traffic

Turning Movement Counts (TMCs) are available from VTrans Transportation Data Management System for the following three intersections within the project study area.

- Main/Barre (2013)
- Main/State (2010)
- Main/School (2013)

Annual Average Daily Traffic (AADT) (2017) is available for the street segments within the project study area, except for East State Street (VTrans State GIS Layer).

The Main & Barre Bicycle and Pedestrian Scoping Study (2018) also includes traffic volumes.

Crash Data

The segments of Main Street and State Street within the project study area are listed as High Crash Location (HCL) segments for 2012 to 2016. There are no intersections within the project study area listed as HCLs.

More detailed crash data is available from the VTrans Public Crash Data Query Tool.

Stantec Consulting Services Inc.
Memorandum

To: Montpelier Downtown Masterplan Project File
From: Watershed Consulting Associates, LLC
Date: September 23, 2019
Re: Montpelier Downtown Masterplan – Meeting with DPW 9-12-19

Existing conditions of infrastructure in the project study area for the Montpelier Downtown Core Master Plan, along with data collected for existing conditions, are described here. A discussion on infrastructure data availability, existing conditions, and future improvement needs was held with Kurt Motyka (DPW), Zach Blodgett (DPW), Andres Torizzo (Watershed), and Sean Neely (Stantec) on 12 September 2019 at Montpelier City Hall. Topics discussed include combined sanitary and storm sewer, sanitary sewer, stormwater, drinking water, district heat, underground electric and communications.

The focus of Watershed’s involvement in this meeting was stormwater management issues and opportunities within the study area. The memorandum prepared by Sean Neely from Stantec dated September 16, 2019 covers other resource issues including information related to the active combined sewer overflows (CSOs) within the project study area.

Combined Sewer Area

Although active CSOs exist within the study area, the contributing drainage area to these active CSOs does not include known surface inlets within the study area. Building rooftops within the study area are known to be connected to the combined sewer. Certain rooftops have already been disconnected from the combined sewer. Others have been identified as opportunities for disconnection although there are challenges including internal drain systems and landowner resistance. The Jacobs Building was one site that was discussed as a potential opportunity. The Rooftop Disconnection Study was discussed and will be sent to the project team for review to help focus on what rooftops have been prioritized for disconnection.

Stormwater Retrofit Opportunities

The project study area aside from building rooftops is believed to be completely separated from the combined sewer system. Therefore, stormwater improvements that manage surface runoff will benefit water quality by reducing volume and pollutants at existing stormwater outfalls along the waterways of the City. There is no current regulatory requirement for the City to improve water quality at these existing outfalls aside from the Municipal General Roads Permit (MRGP)
which requires proper outfall stabilization. The City has already made significant progress to stabilize many of the stormwater outfalls. Improving water quality at these outfalls does align with City goals, and could also help to address future regulation.

Soil conditions are believed to be almost exclusively poor and not conducive for infiltration. Noted exceptions where favorable soils may exist include Stonecutters Way and McKinley Street although these areas are not within the study area. Therefore, it is believed that stormwater improvements will need to be designed as capture and reuse systems or filters with underdrains unless favorable soil conditions can be found where infiltration could be feasible.

Some key project ideas were discussed that could be completed in coordination with larger public works improvements in the City. One such project includes intercepting runoff from East State Street and routing some or all of the flow to a treatment system at the City owned Pitkin Lot which is already in need of repair and reconfiguration. In addition, the Blanchard Lot was identified as a potential site for a valuable stormwater improvement.

3 Acre Permit

The upcoming 3-Acre stormwater permit being issued by the Vermont DEC to regulate existing impervious surfaces was discussed and the draft list as prepared by the Vermont DEC was reviewed. City owned properties were included on this draft list although none of these designated sites were included in the study area. These designated City parcels could be priorities for the City for retrofit but they would not be evaluated as part of this project.

Sincerely,

[Signature]

Andres Torizzo
Principal
APPENDIX - C

Stormwater Management and Water Quality Analysis
Memorandum

Re: Montpelier Downtown Core Master Plan
From: Watershed Consulting Associates, LLC
Date: February 4, 2020
Re: Proposed Stormwater Treatment Modeling Summary

Attachment:

A-1: Map of Evaluated Stormwater Management Opportunities
A-2: Map of Evaluated Street Tree Filtration Systems
A-3: Map of Evaluated Raised Planter Areas
A-4: Map of Evaluated Streetscapes
A-5: Map of Proposed Buffer Enhancements

1. Introduction

Watershed consulting Associates, LLC (Watershed) is pleased to submit this memo describing the modeling assessment of stormwater best management practices (BMPs) in the Montpelier Downtown Core Master Plan study area. This assessment considers stormwater management opportunities that manage existing impervious surfaces within the study area and area designed to improve water quality through filtration and detention and slow release of stormwater volumes following stormwater runoff events. The assessment also compares the water quality benefits of the streetscape stormwater filtration options proposed for the downtown study area under the Concept A and Concept B scenarios and two riparian buffer enhancements.

2. Stormwater Management Opportunities

In order to address the City’s water quality goals including total phosphorus (TP) and stormwater peak flow attenuation, nine practices were assessed in the study area (see Attachment A-1 for an overview map of the assessed practices and their associated drainage areas). These practices focus on filtration of stormwater to remove TP and detention and slow release of stormwater to manage existing impervious surfaces in the study area. The 1 inch storm, also known as the water quality volume (WQv), was selected as the design storm for this assessment as this volume contains the first flush of pollutants that are washed off of the land surface following runoff events. The Environmental Protection Agency’s Opti-Tool was used to assess these practices with the exception of the Pitkin Hillside BMP, which was assessed using the Vermont Department of Environmental Conservation’s Stormwater Treatment Practice Calculator (VT DEC’s STP
Calculator). The STP Calculator was used for this practice because the BMP manages primarily pervious area and the EPA’s Opti-Tool is unable to take the volume and pollutant loading of this pervious area into consideration during modeling. The Opti-Tool was used to estimate a design storage volume, planning level cost, and the estimated TP reduction (lbs and %) associated with each of the remaining 8 BMPs. For the Pitkin Hillside BMP, a spreadsheet method based on treatment volume was utilized to estimate planning level costs. HydroCAD was used to estimate the treatment volume and the STP Calculator was used to estimate pollutant reductions. This information is summarized below in Table 1.

Table 1. Modeling results for the 9 proposed BMPs are summarized below. The practices were sized to manage the WQv (1 in storm).

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Name</th>
<th>BMP Type</th>
<th>Design Storage Capacity (ft³)</th>
<th>Impervious Cover Treated (acres)</th>
<th>TP Load Reduction (lbs)</th>
<th>TP Load Reduction (%)</th>
<th>BMP Cost Estimate ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>City Hall Roof</td>
<td>Rooftop capture and filtration</td>
<td>857</td>
<td>0.24</td>
<td>0.32</td>
<td>76.00%</td>
<td>$30,738</td>
</tr>
<tr>
<td>2</td>
<td>Savoy Roof</td>
<td>Rooftop capture and filtration</td>
<td>454</td>
<td>0.13</td>
<td>0.17</td>
<td>76.00%</td>
<td>$16,281</td>
</tr>
<tr>
<td>3</td>
<td>State St Roof</td>
<td>Rooftop capture and filtration</td>
<td>784</td>
<td>0.22</td>
<td>0.29</td>
<td>76.00%</td>
<td>$28,133</td>
</tr>
<tr>
<td>4</td>
<td>Main St Parking</td>
<td>Sand Filter (subsurface)</td>
<td>14,593</td>
<td>4.02</td>
<td>5.44</td>
<td>75.80%</td>
<td>$523,582</td>
</tr>
<tr>
<td>5</td>
<td>Governor Davis Ave</td>
<td>Sand Filter (subsurface)</td>
<td>10,491</td>
<td>2.89</td>
<td>3.91</td>
<td>62.80%</td>
<td>$376,406</td>
</tr>
<tr>
<td>6</td>
<td>Elm St</td>
<td>Sand Filter (subsurface)</td>
<td>5,881</td>
<td>1.62</td>
<td>2.19</td>
<td>72%</td>
<td>$210,996</td>
</tr>
<tr>
<td>7</td>
<td>Pitkin Parking</td>
<td>Sand Filter (subsurface)</td>
<td>16,843</td>
<td>4.64</td>
<td>6.28</td>
<td>73.50%</td>
<td>$604,334</td>
</tr>
<tr>
<td>8</td>
<td>Blanchard Parking</td>
<td>Rooftop capture and filtration</td>
<td>2,686</td>
<td>0.74</td>
<td>1</td>
<td>75.60%</td>
<td>$96,381</td>
</tr>
<tr>
<td>9</td>
<td>Pitkin Hillside</td>
<td>Sand Filter (subsurface)</td>
<td>1,287</td>
<td>0.03</td>
<td>0.24</td>
<td>55.81%</td>
<td>$61,591</td>
</tr>
</tbody>
</table>

These 9 practices are estimated to reduce TP loading to the Winooski River by 19.84 lbs annually. However, as the size of these practices are increased to manage additional stormwater volume, the reduction in TP for each additional cubic foot of storage and the associated cost for that storage decreases. Using the EPA’s Opti-Tool, each of these practices was optimized to assess the cost effectiveness of additional TP reduction over the target goal of 60% removal. This analysis was not completed for the Pitkin Hillside site due to Opti-Tools’ aforementioned limitation associated with managing primarily pervious surface in the BMP. Table 2 below summarizes this optimization. A 60% TP reduction can still be obtained by reducing the design storage volume for the practices.
Table 2. Optimization results for the 8 assessed BMPs are summarized below.

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Name</th>
<th>BMP Type</th>
<th>Design Storage Capacity (ft³)</th>
<th>Impervious Cover Treated (acres)</th>
<th>TP Load Reduction (lbs)</th>
<th>TP Load Reduction (%)</th>
<th>BMP Cost Estimate ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>City Hall Roof</td>
<td>Rooftop capture and filtration</td>
<td>452</td>
<td>0.24</td>
<td>0.25</td>
<td>60%</td>
<td>$16,207</td>
</tr>
<tr>
<td>2</td>
<td>Savoy Roof</td>
<td>Rooftop capture and filtration</td>
<td>239</td>
<td>0.13</td>
<td>0.13</td>
<td>60%</td>
<td>$8,584</td>
</tr>
<tr>
<td>3</td>
<td>State St Roof</td>
<td>Rooftop capture and filtration</td>
<td>413</td>
<td>0.22</td>
<td>0.23</td>
<td>60%</td>
<td>$14,834</td>
</tr>
<tr>
<td>4</td>
<td>Main St Parking</td>
<td>Sand Filter (subsurface)</td>
<td>7,735</td>
<td>4.02</td>
<td>4.3</td>
<td>60%</td>
<td>$277,547</td>
</tr>
<tr>
<td>5</td>
<td>Governor Davis Ave</td>
<td>Sand Filter (subsurface)</td>
<td>9,046</td>
<td>2.89</td>
<td>3.73</td>
<td>60%</td>
<td>$324,586</td>
</tr>
<tr>
<td>6</td>
<td>Elm St</td>
<td>Sand Filter (subsurface)</td>
<td>3,455</td>
<td>1.62</td>
<td>1.83</td>
<td>60%</td>
<td>$123,952</td>
</tr>
<tr>
<td>7</td>
<td>Pitkin Parking</td>
<td>Sand Filter (subsurface)</td>
<td>9,498</td>
<td>4.64</td>
<td>5.12</td>
<td>60%</td>
<td>$340,776</td>
</tr>
<tr>
<td>8</td>
<td>Blanchard Parking</td>
<td>Rooftop capture and filtration</td>
<td>1,433</td>
<td>0.74</td>
<td>0.79</td>
<td>60%</td>
<td>$51,410</td>
</tr>
<tr>
<td>9</td>
<td>Pitkin Hillside</td>
<td>Sand Filter (subsurface)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

For the optimized practices, cost per pound of TP reduced decreases by an average of $28,003 per practice. For the originally modeled practices (modeled to manage the WQv), the total TP removed (exclusive of the Pitkin Hillside BMP) totals 19.6 lbs while the optimized practices reduce TP loading by 16.4 lbs, a difference of 3.22 lbs. However, the estimated costs for the originally modeled scenario total nearly $730,000 more than the optimized scenario. See Table 3 below for a comparison of TP reductions and cost estimates for the proposed BMPs.
Table 3. Original modeling and optimized TP reductions and cost estimates are summarized.

<table>
<thead>
<tr>
<th>BMP Name</th>
<th>BMP Type</th>
<th>Modeling for WQv (1in)</th>
<th>Optimized Model for 60% TP Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TP Load Reduction (lbs)</td>
<td>TP Load Reduction (%)</td>
</tr>
<tr>
<td>1 City Hall Roof</td>
<td>Rooftop capture and filtration</td>
<td>0.32</td>
<td>76.00%</td>
</tr>
<tr>
<td>2 Savoy Roof</td>
<td>Rooftop capture and filtration</td>
<td>0.17</td>
<td>76.00%</td>
</tr>
<tr>
<td>3 State St Roof</td>
<td>Rooftop capture and filtration</td>
<td>0.29</td>
<td>76.00%</td>
</tr>
<tr>
<td>4 Main St Parking</td>
<td>Sand Filter (subsurface)</td>
<td>5.44</td>
<td>75.80%</td>
</tr>
<tr>
<td>5 Governor Davis Ave</td>
<td>Sand Filter (subsurface)</td>
<td>3.91</td>
<td>62.80%</td>
</tr>
<tr>
<td>6 Elm St</td>
<td>Sand Filter (subsurface)</td>
<td>2.19</td>
<td>72%</td>
</tr>
<tr>
<td>7 Pitkin Parking</td>
<td>Sand Filter (subsurface)</td>
<td>6.28</td>
<td>73.50%</td>
</tr>
<tr>
<td>8 Blanchard Parking</td>
<td>Rooftop capture and filtration</td>
<td>1</td>
<td>75.60%</td>
</tr>
<tr>
<td>9 Pitkin Hillside</td>
<td>Sand Filter (subsurface)</td>
<td>0.24</td>
<td>55.81%</td>
</tr>
</tbody>
</table>
2.2. Street Tree Filtration Systems and Raised Planters

As a part of the proposed redevelopment of the downtown core area of Montpelier, two scenarios were presented. The first, Concept A is summarized as follows:

- Emphasizes the pedestrian experience and placemaking over transportation infrastructure on downtown streets
- Wider area devoted to street trees, plant beds, and stormwater infiltration
- Shared lanes for bikes (sharrows), bike parking
- More intensive conversion of on-street parking to pedestrian and green space, assuming addition of structured parking

Conversely, Concept B can be summarized as:

- Improves the pedestrian experience and placemaking while keeping the current emphasis on transportation infrastructure
- More moderate area devoted to street trees and stormwater infiltration
- Protected bike lanes (on Main Street only), bike parking
- Less intensive conversion of on-street parking to pedestrian and green space

For each of these concepts, street trees with filtration planting media are proposed (hereafter referred to as tree filters). Between the tree filters, permeable paves are recommended to convey runoff from the sidewalk areas to the filtration material. Although these permeable areas were not assessed for water quality benefit, some benefit would be expected depending on the type and depth of substrate used during installation. For this assessment, these areas are treated as stormwater conveyance. The stormwater will enter the tree filters and pass through the media to improve water quality before being discharged to the existing stormwater conveyance system. The two concepts include these tree filters in different areas (see Attachment A-2 for a map of the street segments where tree filters are proposed in the two scenarios). The size of the tree filters also differs from Concept A to Concept B. The proposed number of tree filters and sidewalk area managed by each segment of street tree filters can be found in Table 4.
Table 4. Sidewalk length and area managed by tree filters for each street segment are summarized by concept.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Street Segment</th>
<th>Sidewalk Length Managed by Filter Trees (ft)</th>
<th>Sidewalk Area (acres)</th>
<th>Permeable Paver Area (acres)</th>
<th>Total Proposed Tree Filters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept A</td>
<td>Main Street - East Side</td>
<td>223</td>
<td>0.07</td>
<td>0.05</td>
<td>4</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main Street - East Side</td>
<td>1,561</td>
<td>0.61</td>
<td>0.18</td>
<td>42</td>
</tr>
<tr>
<td>Concept A</td>
<td>Main St - West Side</td>
<td>223</td>
<td>0.07</td>
<td>0.05</td>
<td>4</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main St - West Side</td>
<td>1,482</td>
<td>0.54</td>
<td>0.17</td>
<td>38</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - North Side</td>
<td>657</td>
<td>0.20</td>
<td>0.12</td>
<td>11</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - North Side</td>
<td>979</td>
<td>0.22</td>
<td>0.18</td>
<td>25</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - South Side</td>
<td>701</td>
<td>0.26</td>
<td>0.16</td>
<td>12</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - South Side</td>
<td>979</td>
<td>0.27</td>
<td>0.16</td>
<td>25</td>
</tr>
<tr>
<td>Concept A</td>
<td>East State Street - North Side</td>
<td>294</td>
<td>0.09</td>
<td>0.05</td>
<td>5</td>
</tr>
<tr>
<td>Concept B</td>
<td>East State Street - North Side</td>
<td>294</td>
<td>0.07</td>
<td>0.05</td>
<td>9</td>
</tr>
</tbody>
</table>
The tree filters were assessed for each concept and street segment and were used to assess the water quality impacts these tree filters assuming that each filter will have a volume of 1,000 ft$^3$. The VT DEC’s STP Calculator was used to assess the annual TP load for each segment, the stormwater depth managed, and the TP reductions (% and lbs). See Table 5 for a summary of the pollutant removals by scenario and street segment.

Table 5. Tree filter pollutant reductions.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Street Segment</th>
<th>Annual TP Loading from Segment (lbs)</th>
<th>Tree Filters (1,000ft$^3$ per Tree Filter)</th>
<th>Total Tree Filter Volume (ft$^3$)</th>
<th>Stormwater Depth Managed (in)</th>
<th>TP Reduction (%)</th>
<th>TP Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept A</td>
<td>Main Street - East Side</td>
<td>0.20</td>
<td></td>
<td>4,000</td>
<td>9.34</td>
<td>55.6%</td>
<td>0.11</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main Street - East Side</td>
<td>1.59</td>
<td></td>
<td>42,000</td>
<td>14.68</td>
<td>62.5%</td>
<td>0.99</td>
</tr>
<tr>
<td>Concept A</td>
<td>Main St - West Side</td>
<td>0.20</td>
<td></td>
<td>4,000</td>
<td>9.34</td>
<td>55.6%</td>
<td>0.11</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main St - West Side</td>
<td>1.43</td>
<td></td>
<td>38,000</td>
<td>14.66</td>
<td>63.1%</td>
<td>0.90</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - North Side</td>
<td>0.55</td>
<td></td>
<td>11,000</td>
<td>9.56</td>
<td>64.0%</td>
<td>0.35</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - North Side</td>
<td>0.64</td>
<td></td>
<td>25,000</td>
<td>17.01</td>
<td>62.1%</td>
<td>0.40</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - South Side</td>
<td>0.71</td>
<td></td>
<td>12,000</td>
<td>7.91</td>
<td>62.5%</td>
<td>0.44</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - South Side</td>
<td>0.75</td>
<td></td>
<td>25,000</td>
<td>16.13</td>
<td>61.8%</td>
<td>0.46</td>
</tr>
<tr>
<td>Concept A</td>
<td>East State Street - North Side</td>
<td>0.24</td>
<td></td>
<td>5,000</td>
<td>9.70</td>
<td>63.6%</td>
<td>0.15</td>
</tr>
<tr>
<td>Concept B</td>
<td>East State Street - North Side</td>
<td>0.20</td>
<td></td>
<td>9,000</td>
<td>20.49</td>
<td>55.6%</td>
<td>0.11</td>
</tr>
</tbody>
</table>

In general, Concept B includes additional tree filters and manages additional sidewalk area and so TP reductions are greater for this practice type.

Raised planters were also assessed for each concept and street segment and were used to assess the water quality impacts these planters. The planters will be designed so that the planting media will filter the stormwater running off of the sidewalk surface and slowly release the stormwater volume to the existing piped stormwater conveyance system (similar to the tree filters described above). See Attachment A-3 for a map of the street segments assessed for the installation of raised planters. The areas managed by the raised planters are described in Table 6.
Table 6. Sidewalk length and area managed by raised planters for each street segment are summarized by concept.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Street Segment</th>
<th>Sidewalk Length Managed by Raised Planters (ft)</th>
<th>Sidewalk Area (acres)</th>
<th>Permeable Area (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept A</td>
<td>Main Street - East Side</td>
<td>1338</td>
<td>0.40</td>
<td>0.31</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main Street - East Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>Main St - West Side</td>
<td>1259</td>
<td>0.38</td>
<td>0.29</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main St - West Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - North Side</td>
<td>332</td>
<td>0.10</td>
<td>0.06</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - North Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - South Side</td>
<td>278</td>
<td>0.10</td>
<td>0.06</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - South Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>East State Street - North Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concept B</td>
<td>East State Street - North Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The VT DEC’s STP Calculator was used to assess the annual TP load for each segment, the stormwater depth managed, and the TP reductions (% and lbs) for the proposed raised planters. See Table 7 for a summary of the pollutant removals by scenario and street segment.
### Table 7. Raised planter pollutant reductions.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Street Segment</th>
<th>Annual TP Loading from Segment (lbs)</th>
<th>Total Planter Filter Volume (ft³)</th>
<th>Stormwater Depth Managed (in)</th>
<th>TP Reduction (%)</th>
<th>TP Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept A</td>
<td>Main Street - East Side</td>
<td>1.15</td>
<td>23,481</td>
<td>9.11</td>
<td>63.5%</td>
<td>0.73</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main Street - East Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>Main St - West Side</td>
<td>1.08</td>
<td>22,093</td>
<td>9.08</td>
<td>63.3%</td>
<td>0.68</td>
</tr>
<tr>
<td>Concept B</td>
<td>Main St - West Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - North Side</td>
<td>0.29</td>
<td>5,372</td>
<td>9.25</td>
<td>61.5%</td>
<td>0.18</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - North Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>State Street - South Side</td>
<td>0.29</td>
<td>4,638</td>
<td>7.99</td>
<td>61.5%</td>
<td>0.18</td>
</tr>
<tr>
<td>Concept B</td>
<td>State Street - South Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Concept A</td>
<td>East State Street - North Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Concept B</td>
<td>East State Street - North Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

All proposed streetscape stormwater treatment features (tree filters and raised planters) are summarized for both Concept A and Concept B below in Table 8. For an overview map showing the two treatment systems and their proposed locations in both concepts, see Attachment A-4.
Table 8. Comparison of the water quality benefits of proposed tree filters for Concept A and Concept B.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Sidewalk Length Managed (ft)</th>
<th>Total Tree Filters (#)</th>
<th>Total Tree Filter Volume (ft³)</th>
<th>TP Reduced (%)</th>
<th>TP Reduced (lbs)</th>
<th>Sidewalk Length Managed (ft)</th>
<th>Total Raised Planter Volume (ft³)</th>
<th>TP Reduced (%)</th>
<th>TP Reduced (lbs)</th>
<th>TP Reduced (%)</th>
<th>TP Reduced (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept A</td>
<td>2,098</td>
<td>36</td>
<td>36,000</td>
<td>61.6%</td>
<td>1.17</td>
<td>3,208</td>
<td>55,584</td>
<td>63.0%</td>
<td>1.76</td>
<td>62.4%</td>
<td>2.93</td>
</tr>
<tr>
<td>Concept B</td>
<td>5,295</td>
<td>139</td>
<td>139,000</td>
<td>62.2%</td>
<td>2.87</td>
<td>-</td>
<td>-</td>
<td>0.0%</td>
<td>0</td>
<td>62.2%</td>
<td>2.87</td>
</tr>
</tbody>
</table>

Both concepts manage the majority of the sidewalk area in the study area, though costs and aesthetics will vary from Concept A to Concept B. It is expected that both scenarios will result in a reduction in TP loading of approximately 2.9 lbs per year.

2.3. Riparian Buffer Enhancements

Riparian buffers are proposed for two sections along the North Branch Winooski River and the Winooski River. Riparian buffers stabilize riverbanks and reduce streambank erosion and provide filtration of stormwater, reducing pollutants such as TP, Total Nitrogen, and Total Suspended Solids. See Attachment A-5 for an overview map of the proposed buffer areas. The University of New Hampshire’s Stormwater Center (UNH SC) recently published a report (June 2019) entitled “Pollutant Removal Credits for Buffer Restoration in MS4 Permits” and this methodology and the calculated performance curves were utilized to estimate the TP reduction associated with these two proposed buffer enhancements. Two buffer width scenarios were assessed: 20ft and 25ft. Two buffer vegetation types were considered for both buffer widths: grass and forested.

The UNH SC’s buffer performance curves are dependent on soil porosity. The latest National Resource Conservation Service (NRCS) soil mapping for hydrologic soil group is unmapped in the proposed buffer areas. The hydrologic soil group indicates soil porosity with Group A having the highest infiltration potential and Group D having the lowest infiltration potential. For this analysis, it was assumed that soils were hydrologic soil group C as the surrounding soils are mapped as such.

The modeled TP reductions for these two proposed buffers are described in Table 9.
Table 9. Estimated TP reductions for two buffer enhancement scenarios.

<table>
<thead>
<tr>
<th>Proposed Western Riparian Buffer</th>
<th>TP Loading from Buffer Area (lbs/yr)</th>
<th>TP Reduction for 20ft Grass Buffer (%)</th>
<th>TP Reduction for 20ft Grass Buffer (lbs/yr)</th>
<th>TP Reduction for 20ft Forested Buffer (%)</th>
<th>TP Reduction for 20ft Forested Buffer (lbs/yr)</th>
<th>TP Reduction for 25ft Grass Buffer (%)</th>
<th>TP Reduction for 25ft Grass Buffer (lbs/yr)</th>
<th>TP Reduction for 25ft Forested Buffer (%)</th>
<th>TP Reduction for 25ft Forested Buffer (lbs/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Western Riparian Buffer</td>
<td>5.86</td>
<td>7%</td>
<td>0.41</td>
<td>9.50%</td>
<td>0.56</td>
<td>9%</td>
<td>0.53</td>
<td>11%</td>
<td>0.65</td>
</tr>
<tr>
<td>Proposed Eastern Riparian Buffer</td>
<td>8.09</td>
<td>7%</td>
<td>0.57</td>
<td>9.50%</td>
<td>0.77</td>
<td>9%</td>
<td>0.73</td>
<td>11%</td>
<td>0.89</td>
</tr>
</tbody>
</table>

In general, the wider the buffer and more dense the vegetation, the higher the TP reduction expected from the buffer. The highest TP reduction was estimated for the 25ft buffer with a forested condition for both the proposed western and eastern buffers (0.65 lbs and 0.89 lbs respectively).

Please review these materials and contact us with any questions regarding this memorandum. Feel free to give us a call at (802) 497-2367, or email Kerrie at Kerrie@watershedca.com.

Sincerely,

Kerrie Garvey
GIS Manager

Andres Torizzo
WCA Principal
Proposed Streetscapes - Tree Filters & Planter Areas
Montpelier Downtown Master Plan
Montpelier, VT

CONCEPT A

CONCEPT B
A CAPITAL IDEA!
MONTPELIER DOWNTOWN CORE MASTER PLAN
PROJECT BACKGROUND
Montpelier has been exploring changes to its downtown core for decades. Recent efforts to expand housing, address circulation, add parking, and reimagine the City's streetscapes are starting to take root. The purpose of this plan is to bring together the best ideas from earlier planning efforts with new perspectives from the community, culminating in a clear and compelling vision for how the Downtown Core should look, function, and feel. The guidance from this plan will provide a "blueprint" for the City's investments in its streetscape, establish a playbook for managing urban stormwater within the core, and frame policy decisions on future land use.

PROJECT PURPOSE
This project is focused specifically on the downtown core with the goal of establishing a vision for the streetscape and land uses within the study area. Previous plans and studies have informed the planning and design work. The Complete Streets Design Report (2018) purposely omitted specific recommendations for State Street and Main Street because there was an understanding that these streets required a more in-depth study. Among others, this project also builds upon the work of previous planning efforts, including the following:

- Capital District Master Plan (1999)
- Greening Americas Capitals (2014)
- Main Street and Barre Street intersection scoping study (2019)
STUDY AREA

The primary focus area for the Downtown Core Master Plan is along portions of State Street, Main Street, Langdon Street, and Barre Street. Within this “core” area of Montpelier's downtown are numerous shops, restaurants, commercial enterprises, civic uses, parking areas, and green spaces. The surrounding context to the Study Area has been considered to ensure that the Downtown Core connects with broader community objectives. Originally the study area for this project was envisioned as being limited to the eastern end of State Street, where the Rialto Bridge is scheduled for replacement in 2022. However, the City Planning staff realized that a more comprehensive study of the entire downtown core was warranted in order to establish a comprehensive vision to work toward as other streets/sidewalks get upgraded over time and as additional downtown developments are proposed.

PROCESS

A holistic, multi-disciplinary approach based on open dialogue was fundamental to the team's strategy for planning and design exploration within the downtown core. Conversations with the general public through a variety of venues including farmers market events, a community meeting, and an online survey, provided helpful insights into the desires and preferences of the local community. Dialogue with stakeholders including members of the local business community and groups dedicated to issues like bike/ped improvements and environmental protection provided additional perspectives. The team also met with City staff, including DPW and the Parks Department, to understand some of the current challenges and priorities for future enhancements.

As the lead for the project, SE Group's team of community planners and landscape architects worked collaboratively with Stantec and Watershed Consulting. Stantec provided critical support in terms of analyzing vehicular circulation and parking, bike/ped enhancements, infrastructure improvements, and implementation strategies. Watershed Consulting explored stormwater management opportunities and conducted water quality modelling. This multi-disciplinary approach allowed for the development of streetscape concepts and land use proposals that were grounded by a comprehensive understanding of the many-faceted issues and opportunities inherent in a complex urban environment. The resulting vision is both aspirational and practical, with a focus on improvements that go beyond mere “beautification” to improve the quality of life for residents, enhance the economic vitality of downtown businesses, and improve the ecology of the rivers that flow through the heart of this community.

COMMUNITY INPUT SUMMARY

In the Foundation phase of the Montpelier Downtown Core Master Plan project, SE Group distributed an online survey, held two public engagement sessions, and conducted a stakeholder meeting. These events were aimed at understanding how community members experience the Downtown Core, what they would like to see in the future, and how to prioritize various streetscape features. Once initial concepts had been created, community members were asked to provide input and ideas during the Concept Refinement Open House and through an online survey. Throughout the planning process, community members were able to follow project developments via storymap.

FARMERS MARKET PUBLIC ENGAGEMENT

The public engagement sessions held at the Montpelier Farmers Market were primarily focused on introducing the Downtown Core Master Plan to the public and receiving initial input on streetscape preferences and landuse priorities. At these events, community members learned about the project goals, study area, and key project considerations such as parking and ecological improvements.
Chapter 1 - Introduction

SURVEY
The survey asked many of the same questions as the public engagement sessions and broadened participation beyond those who attended the Farmers Market events. The survey was shared through the City of Montpelier’s social media channels as a link was available on the City website. Feedback provided through the survey helped the project team better understand how the community experiences the Downtown Core. The thoughts and ideas shared were then translated to strategic land use and streetscape improvements that further express and complement the vibrancy of the Montpelier’s Downtown. Survey report found in attached Appendix.

Key Survey Takeaways
Streetscape designs and land use recommendations will need to strategically address concerns such as parking and walkability while maintaining the existing historic character and enhancing the vibrancy of the Downtown Core. Future plans should build upon and further express the positive attributes of Montpelier’s Downtown.

STAKEHOLDER MEETING
The project team hosted a series of stakeholder sessions that included a brief presentation about the project and a facilitated discussion about streetscape improvements and land use in the Downtown Core. To receive the most specific feedback possible, participants were asked to provide recommendations concerning individual streets and parcels. The feedback from those sessions has been grouped into themes and main topics:

Parking: Ideas and concerns related to parking surfaced repeatedly throughout the day. Conversations included ideas about shuttle incentives, weekend vs. weekday parking strategies, wayfinding plans, and finding a balance between pedestrian safety and vehicular convenience. Some local business owners stressed the importance of maintaining convenient short-term parking to serve the local population, which includes people with limited mobility, while some thought limited on-street parking in the core area was fine. A core takeaway from this discussion was that future streetscape strategies will need to consider multiple user groups, more diverse transportation facilities, and the operational challenge of changing seasons.

Public Spaces: Participants voiced a need for more public spaces in downtown Montpelier. As developable land isn’t readily available in Montpelier, the conversation focused around the thoughtful reuse of existing open spaces and creative strategies to carve out new public space. The idea of restoring a more robust vegetative buffer along the river and its tributaries combined with new pathways was discussed as a way to improve the river’s ecology and enhance the pedestrian experience of this natural resource.

Vibrancy: The community input received throughout the planning process has generally agreed on one core tenet: the Downtown Core of Montpelier is a vibrant space with unique character. To maintain and accentuate the character of Montpelier, community members spoke about the addition of public art, artistic lighting, more trees and vegetation, and inviting public spaces. There was a collective consensus that making the pedestrian experience more pleasant would encourage visitors to spend more time downtown.

Stormwater: To comply with community expectations and state and federal regulations, stormwater retention and treatment strategies must be incorporated into future development and planning considerations. During the stakeholder meetings, participants expressed support for creating a holistic stormwater approach that combines retention, filtration, and grey water reuse (e.g., irrigation of street trees). The idea of making these stormwater management practices more readily visible and/or incorporating interpretive signage was well-received.

Walkability/Bikeability: Everyone seemed to agree that the downtown is generally walkable, although some people noted deficiencies in terms of winter sidewalk conditions. Participants in the stakeholder meetings discussed how well-designed pedestrian experiences could enhance the unique character of the city. Some people mentioned concerns for pedestrian safety at crosswalks during nighttime due to inadequate lighting. A variety of opinions regarding the need for improved bike facilities were expressed. Some participants expressed a need for improved north-south bike connections, bike parking, and separation from cars. Others felt that too much emphasis was paid to bicyclists given their relatively limited numbers and seasonality.

CONCEPT REFINEMENT
In December, the planning team hosted a public engagement event at the Montpelier City Hall to present initial streetscape concepts and land use opportunities. Participants placed sticky notes and sticker dots to provide feedback on the ideas and concepts they preferred. This presentation style allowed participants to indicate overall concept preferences as well as provide feedback on specific concept characteristics they liked or disliked.

The concept presentation and survey questions were posted on the project website to broaden the participation beyond those who were able to attend the Open House. The responses from the survey and Open House generally aligned and illustrated a strong preference for Concept A.
CHAPTER 2 - DOWNTOWN CORE ANALYSIS & OPPORTUNITIES

INTRODUCTION

A central goal for the project is to bring together considerations of streetscape, bicycle and pedestrian infrastructure, land use, and stormwater management. Each of these elements were evaluated during the analysis phase of the project, and important issues and opportunities were identified that shape the vision for the downtown core.
BIKE/PEDESTRIAN – SUMMARY

Pedestrian –

The lack of a strong grid within the study area challenges pedestrian mobility. Improved north-south pedestrian connectivity mid-block between State and Court Streets would improve convenience in pedestrian movement and connect future parking options, to the established road network and associated commercial uses. Improved north-south connectivity between East State Street and Barre Street, through reconfiguration or reestablishment of a grid within the Pitkin-Blanchard lot area, would equally enhance options for movement. Expanding connections between established sidewalks and the riverfront is also envisioned. Focusing off enhanced pedestrian environments along Langdon Street, at City Hall, and at the Rialto Bridge presents opportunities to establish public gathering places adjacent to existing commercial enterprises.

BIKE/PEDESTRIAN – SUMMARY

Bike –

As the city seeks to improve its streetscape, it has identified the need to expand accommodations for bicycles. In addition to the potential strategy of using Main Street as a primary mode for bike use with dedicated bike lanes, other potential facilities are considered that expand the options for north-south mobility. The existing River Path provides the primary east-west connectivity for bicyclists, and the proposed shared use path on Barre Street would fill in a critical gap. Langdon Street would become friendlier to bikes with the removal of parking on one side of the street.

BICYCLE & PEDESTRIAN OPPORTUNITIES
INFILL OPPORTUNITIES – SUMMARY

Overall much of the study area is built-out and vibrant. Two empty lots were identified where potential infill opportunities exist, but careful consideration of rear-building access is needed. A former and existing gas station along State Street both have some redevelopment opportunity. Issues associated with ownership, potential brownfields, and small lot sizes will limit the scope and scale of new development opportunities. Rear-building and alleyways exist that, with potential local public and private investments, might be reconfigured to support more diverse uses, with parking potentially being of critical importance to support changes within the streetscape. In all cases, executing on infill development will rely on partnership between private-sector landowners and the city.

- **FORMER GAS STATION LOT**
  - 4-5 story building would match adjacent built pattern/forms
  - Potential housing above commercial use
  - Parking?

- **SHELL GAS STATION REDEVELOPMENT**
  - Opportunity for higher density use more in keeping with adjacent built pattern/forms
  - Potential housing above commercial use
  - Potential structured parking in back of lot

- **SHAW’S SUPERMARKET REDEVELOPMENT**
  - Opportunity for higher density use more in keeping with adjacent built pattern/forms
  - 3-4 story building with zero setback (parking behind) would be consistent with adjacent buildings
  - Key location as gateway to downtown from Memorial Ave. and close to river
  - Excellent location for downtown living next to river (potentially over redeveloped grocery store)

- **CAPITAL DRY CLEANERS REDEVELOPMENT**
  - Opportunity for higher density use more in keeping with adjacent built pattern/forms

- **JACOBS LOT: PARKING GARAGE OPPORTUNITY**
  - Central location and screening from buildings on Main St.
  - Access to potential pedestrian connection to river path
  - Small lot
  - Potential structured parking in back of lot

- **EMPTY LOT**
  - Central location adjacent to potential pedestrian connection to river path
  - Small lot
  - Potential housing above commercial use
  - Potential structured parking in back of lot

- **EMPTY LOT**
  - Central location and screening from buildings on Main St.
  - Accommodate improved bike/ped amenities and open space

- **EMPTY LOT**
  - Adjacent to bike path
  - Potential housing above commercial lot
  - Potential structured parking in back of lot

INFILL OPPORTUNITIES - SUMMARY

Overall much of the study area is built-out and vibrant. Two empty lots were identified where potential infill opportunities exist, but careful consideration of rear-building access is needed. A former and existing gas station along State Street both have some redevelopment opportunity. Issues associated with ownership, potential brownfields, and small lot sizes will limit the scope and scale of new development opportunities. Rear-building and alleyways exist that, with potential local public and private investments, might be reconfigured to support more diverse uses, with parking potentially being of critical importance to support changes within the streetscape. In all cases, executing on infill development will rely on partnership between private-sector landowners and the city.
OPEN SPACE SUMMARY

Dovetailing in part with the lack of infill opportunities observed within the downtown core, the need for expanded open space options was identified from the public process. Two broad areas for open space opportunities were considered; open space that relates to the existing riparian zones and open spaces integrated within more dense urban fabric. In both cases, this need for open space rests on the importance that such places have in enhancing community gathering, provide areas to support stormwater treatment and maintain natural resources, and allow for civic use to integrate with the local businesses that enliven the downtown.

OPEN SPACE OPPORTUNITIES
STORMWATER OPPORTUNITIES - SUMMARY

Two broad categories of potential stormwater treatment identified as possible within the downtown core are subsurface options and above-grade options. Given the density within the study area and the naturally low permeability of the underlying soils, a greater reliance on subsurface systems is recommended. Where existing or new open spaces are established, or where streetscape design opportunities allow, above-grade treatment options can be appropriate and can establish a visual reminder of how important managing stormwater resources is. In addition to the above, enhancing riparian areas through appropriate revegetation and reinforcement would improve water quality, while rooftop capture and treatment of rainwater is also possible in many locations within the downtown core.

Legend

- Proposed Treatment Opportunities
  - Subsurface Treatment
  - Above-Ground Treatment
  - Rooftop Capture and Treatment
  - Riparian Buffer Restoration & Reinforcement

- Parcel Boundary
- Downtown Montpelier Boundary
- Project Study Area
- Impervious Surface

STORMWATER TREATMENT OPPORTUNITIES
CHAPTER 3 - STREETSCAPE STRATEGIES
INTRODUCTION
The conceptual design strategies presented here address the project and community goals of creating a more vibrant and walkable Montpelier. While the two overarching concepts weigh their prioritization of the pedestrian experience differently, both concepts incorporate wider sidewalks and green improvements such as trees, park spaces and permeable pavement.

CONCEPT A
- Emphasizes the pedestrian experience over transportation infrastructure on downtown streets.
- Wider area devoted to street trees, plant beds, and stormwater infiltration
- Shared lanes for bikes (sharrows), bike parking
- More intensive conversion of on-street parking to pedestrian and green space, assuming addition of structured parking
*A cycle track is now proposed on Elm Street with a shared use connection to the River Path

CONCEPT B
- Improves the pedestrian experience and placemaking while keeping the current emphasis on transportation infrastructure
- More moderate area devoted to street trees and stormwater infiltration
- Protect bike lines (Main St. only), bike parking
- Less intensive conversion of on-street parking to pedestrian and green space
*A cycle track on Elm Street and shared use path connection to the River Path is recommended for this option as well as an alternative north-south bike route
Chapter 3 - Streetscape Strategies

Concept A

**MAIN STREET - CONCEPT A - DESIGN INTENT**

**EXISTING SECTION**

Typical street sections explain the amount of room given to various uses of the street. Currently, most of the street is devoted to cars. This concept explores giving more room to pedestrians, outdoor seating, business frontage, stormwater infiltration and street trees.

**PROPOSED SECTION**

- **LIGHTING**
  - Pedestrian-scale light fixtures enhance safety and complement the downtown’s historic character.

- **LARGE TREE PLANTERS**
  - Wide, curbed plant beds provide ample room for large street trees to thrive, and could also include attractive perennial plantings. Permeable pavers over soil cells allow stormwater to infiltrate down to tree roots.

- **WIDE TREE BELT**
  - Ample space is provided for street furniture, potential outdoor dining and snow storage.

- **SHARED LANES**
  - As an alternative to protected bike lanes, well-marked shared lanes support cyclists and allow for a wider sidewalk & tree belt.

- **PEDESTRIAN ALLEYWAYS**
  - Consolidating access to parking allows some alleys to be open to pedestrians and bicyclists only.

- **PARKING**
  - Most on-street parking remains, except where pedestrian improvements take priority.

- **CITY HALL PLAZA**
  - City Hall deserves a grand public space. A brick plaza that spans Main Street makes City Hall stand out, and becomes a stage for public gatherings and events.

- **AUBUCHON HARDWARE**

- **ZENITH**

- **PHO THAI EXPRESS**

- **ONE MORE TIME**

- **CITY HALL FIRE STATION**

- **PEDESTRIAN ALLEYWAYS**

- **PARKING**

- **LARGE TREE PLANTERS**

- **WIDE TREE BELT**

- **SHARED LANES**

- **LIGHTING**
Concept A

**STREET FURNITURE**
Lighting, benches and bollards with historic character

**SHARED LAKES**
Ample room for bikes and cars to share the road safely.

**TRAFFIC CALMING**
Paving pattern continues across the street to address City Hall Plaza and visually signal traffic to slow down. Still enough room for parking.

**CITY HALL PLAZA**
Open, paved space suitable for public events.

**EXISTING CONDITIONS**

**CHARACTER IMAGES**
**Chapter 3 - Streetscape Strategies**

### Concept A

**STATE STREET - CONCEPT A - CHARACTER**

**EXISTING SECTION**

**PROPOSED SECTIONS**

Typical street sections explain the amount of room given to various uses of the street. Currently, most of the street is devoted to cars. This concept explores giving more room to pedestrians, outdoor seating, business frontage, stormwater infiltration and street trees.

- **PARKING**
  Most of the parking on State Street remains, except where pedestrian improvements take priority.

- **LIGHTING**
  Pedestrian-scale light fixtures enhance safety and complement the downtown’s historic character.

- **LARGE TREE PLANTERS**
  Wide, curbed soil beds provide ample room for large street trees to thrive. Tree grates would work as an alternative where the sidewalk is too narrow. Permeable pavers over soil cells allow stormwater to infiltrate down to tree roots.

- **WIDE TREE BELT**
  Ample space is provided for street furniture, potential outdoor dining and snow storage.

- **THE RIALTO BRIDGE**
  The bridge becomes a public gathering space where people can sit and view the river. A raised, curbless, brick-paved section of street accentuates this unique moment in the City where the public realm of the street intersects the ecological realm of the river.

- **SHARED LANES**
  Well-marked shared lanes support cyclists while keeping the width of the road down.

- **WIDER SIDEWALKS**
  Widened sidewalks provide a minimum of 3’ usable space for businesses while keeping an open travel lane for pedestrians.

- **WIDE TREE BELT**
  Ample space is provided for street furniture, potential outdoor dining and snow storage.
Concept A

TRAFFIC CALMING
In this concept, the road is tabbed and the brick pavement extends across. This bridge becomes an ideal drop-off area for downtown visitors, with slower traffic and a focus on walkability.

RIALTO BRIDGE
A canopy structure on the bridge creates a place for people to sit in an area with many cafes and restaurants. It celebrates where the urban fabric intersects the ecological realm of the river.

LARGE TREE BEDS
8’x12’ raised beds and soil cells support the growth of healthy, mature street trees. Colorful perennials make the streets more vibrant.

EXISTING CONDITIONS
CHARACTER IMAGES
Chapter 3 - Streetscape Strategies

BARRE STREET - CONCEPT A - DESIGN INTENT

EXISTING SECTION

PROPOSED SECTION

Typical street sections explain the amount of room given to various uses of the street. Currently, most of the street is devoted to cars. This concept explores giving more room to pedestrians, people on bikes, stormwater infiltration and street trees.
**Concept A**

**FESTIVITIES**
Art installations, string lighting, pop-up seating areas and colorful paving patterns make Langdon Street a different and exciting place in downtown Montpelier.

**EXISTING SECTION**
Typical street sections explain the amount of room given to various uses of the street. Currently, most of the street is devoted to cars. This concept explores giving more room to pedestrians, outdoor seating and business frontage.

**PARKING FLEXIBILITY**
This design gives the City the flexibility to allow on-street parking and vehicular travel when it is needed, and limit use or close off the street for events.

**SHARED STREET (“WOONERF”)**
Popular in Amsterdam and Washington DC, shared streets give power to the pedestrian by allowing them to use the full width of the street. Cars can still drive through, but at much lower speeds. Because the street is all one level, it feels more like a plaza than a road.

**CURBLESS**
Detectable warning strips signify the edge of the roadway for the visually impaired.

**PROPOSED SECTION**
This concept explores giving more room to pedestrians, outdoor seating and business frontage.
Concept A

EXISTING CONDITIONS

CHARACTER IMAGES

LANGDON STREET - CONCEPT A - CHARACTER
Montpelier Downtown Core Master Plan

20

MAIN STREET - CONCEPT B - DESIGN INTENT

**Concept B**

**LIGHTING**
Pedestrian scale light fixtures enhance safety and complement the downtown's historic character.

**TREE BELT**
3x5' tree grates are a balanced approach to greening that allows room for bike lanes. Permeable pavers overlaid on soil cells allow stormwater to infiltrate down to tree roots.

**PROTECTED BIKE LINES**
Bike travel is separated from the road by a curb and buffer strip for maximum comfort and safety.

**EXISTING SECTION**

**CITY HALL PLAZA**
Opening up the plaza in front of City Hall makes the historic building more visible from the street and provides space for public gatherings.

**PEDESTRIAN ALLEYWAYS**
Consolidating access to parking allows some alleys to be open to pedestrians and bicyclists only.

**PARKING**
Most on-street parking remains, except where pedestrian improvements take priority.

**PROPOSED SECTION**

Typical street sections explain the amount of room given to various uses of the street. Currently, most of the street is devoted to cars. This concept explores giving more room to pedestrians, people on bikes, outdoor seating, business frontage, stormwater infiltration and street trees.
Concept B

**EXISTING CONDITIONS**

**CHARACTER IMAGES**

**BIKE LINES**
Separated bike lanes provide a safe, comfortable avenue for cyclists on Main Street

**STREET FURNITURE**
Lighting and benches with historic character

**CITY HALL PLAZA**
Open, paved space suitable for public events

**MAIN STREET - CONCEPT B- CHARACTER**
**Concept B**

**EXISTING SECTION**

Typical street sections explain the amount of room given to various uses of the street. Currently, most of the street is devoted to cars. This concept explores giving more room to pedestrians, outdoor seating, business frontage, stormwater infiltration and street trees.

**PROPOSED SECTION**

**PARKING**

Almost all of the parking on State Street remains, except on one side of the Rialto Bridge.

**LIGHTING**

Pedestrian-scale light fixtures enhance safety and complement the downtown’s historic character.

**TREE BELT**

5’x5’ tree grates are a balanced approach to greening that allows room for on-street parking. Permeable pavers over soil cells allow stormwater to infiltrate down to tree roots.

**SHARED LANES**

Well-marked shared lanes support cyclists while keeping the width of the road down.

**WIDER SIDEWALKS**

Widened sidewalks provide a minimum of 3’ usable space for businesses while keeping an open travel lane for pedestrians.

**THE RIALTO BRIDGE**

The bridge becomes a public gathering space where people can sit and view the river. Raised planters provide a buffer between seating and traffic.

**CAPITOL GROUNDS CAFE**

**ALLA VITA RESTAURANT**

**LOTUS DAY SPA**

**NORTH BRANCH CAFE**

**WILAIWAN’S TAVERN**

**CAPITOL GROUNDS CAFE**

**SUBWAY**

**POSITIVE PIE**
### Concept B

**EXISTING CONDITIONS**

**CHARACTER IMAGES**

**STATE STREET - CONCEPT B - CHARACTER**

**RIALTO BRIDGE**

A canopy structure on the bridge creates a place for people to sit in an area with many cafes and restaurants. It celebrates where the urban fabric intersects the ecological realm of the Winooski River.

**PARKING**

This concept aimed to keep as much parking as possible on State Street.
LANGDON STREET - CONCEPT B - DESIGN INTENT

**WIDENED SIDEWALKS**
Sidewalks are widened to 8-12’ on both sides of the street for a comfortable pedestrian experience.

**PARKING**
Permanent on-street parking remains on the southern side of the street.

**EXISTING SECTION**

**PROPOSED SECTION**
Typical street sections explain the amount of room given to various uses of the street. Currently, most of the street is devoted to cars. This concept explores giving more room to pedestrians, outdoor seating, and business frontage.
Chapter 3 - Streetscape Strategies

**PARKING STRATEGY - A**

**TOTAL PARKING COUNTS (APPROXIMATE)**
- Existing Spaces: 199
- Proposed Spaces: 152-168
- Garage Public Spaces: 65 (Hotel half full)
- Net Gain: 18-34 (Hotel half full)
- Net Loss: 13-29 (Hotel full)

**Main Street 1**
- Existing Spaces: 17
- Proposed Spaces: 17
- Net Gain: 0

**Main Street 2**
- Existing Spaces: 33
- Proposed Spaces: 37-39
- Net Gain: 4-6

**Main Street 3**
- Existing Spaces: 29
- Proposed Spaces: 22-25
- Net Loss: 4-7

**Main Street 4**
- Existing Spaces: 0
- Proposed Spaces: 0
- Net Gain: 0

**Langdon Street**
- Existing Spaces: 20
- Proposed Spaces: 10
- Net Loss: 10

**State Street (E of Elm)**
- Existing Spaces: 26
- Proposed Spaces: 6-8
- Net Loss: 18-20

**State Street (W of Elm)**
- Existing Spaces: 35
- Proposed Spaces: 18-20
- Net Loss: 18-20

**Estate Street**
- Existing Spaces: 14
- Proposed Spaces: 14
- Net Gain: 0

**Barre Street**
- Existing Spaces: 25
- Proposed Spaces: 16
- Net Loss: 9

**Legend**
- **Downtown Montpelier Boundary**
- **Project Study Area**
- **Parcel Boundary**
- **Impervious Surface**
- **Proposed Parking Strategy**
  - Parallel Parking
  - Flexible Parallel Parking (can close for events)
  - Angled Parking
  - Remove Parking
- **Proposed Streetscape Strategy**
  - Large, Raised Beds (Potential perennials)
  - Tree Grates
  - Tree Grates with Protected Bike Lanes

**Note:** Existing, mature street trees will be incorporated into the new streetscape where feasible.
**PARKING STRATEGY - B**

**L冈DON STREET**
- Existing Spaces: 20
- Proposed Spaces: 10
- Net Loss: 10

**STATE STREET (E OF ELM)**
- Existing Spaces: 26
- Proposed Spaces: 18.20
- Net Loss: 6.8

**STATE STREET (W OF ELM)**
- Existing Spaces: 35
- Proposed Spaces: 30.35
- Net Loss: 5

**EAST STATE STREET**
- Existing Spaces: 33
- Proposed Spaces: 37.39
- Net Gain: 4.6

**MAIN STREET 1**
- Existing Spaces: 17
- Proposed Spaces: 10-12
- Net Loss: 5-7

**MAIN STREET 2**
- Existing Spaces: 33
- Proposed Spaces: 37.39
- Net Gain: 4.6

**MAIN STREET 3**
- Existing Spaces: 29
- Proposed Spaces: 23.25
- Net Loss: 4.6

**MAIN STREET 4**
- Existing Spaces: 0
- Proposed Spaces: 0
- Net Gain: 0

**TOTAL PARKING COUNTS (APPROXIMATE)**
- Existing Spaces: 199
- Proposed Spaces: 154-171
- Garage Public Spaces: 65
  - (Hotel half full)
  - 18
  - (Hotel full)
- Net Gain: 20-37
  - (Hotel half full)
  - 20-37
  - (Hotel full)

**Legend**
- **Downtown Montpelier Boundary**
- **Project Study Area**
- **Parcel Boundary**
- **Impervious Surface**

**Proposed Parking Strategy**
- Parallel Parking
- Flexible Parallel Parking
  - (can close for events)
- Angled Parking
- Remove Parking

**Proposed Streetscape Strategy**
- Large, Raised Beds
  - (potential perennials)
- Tree Grates
- Tree Grates with Protected Bike Lanes

**Note:**
- All proposed street trees are to be located within a band of permeable pavers with potential soil cells.
- No changes to parking and/or street trees are proposed in areas that are not highlighted.
- Note: Existing, mature street trees will be incorporated into the new streetscape where feasible.
Chapter 3 - Streetscape Strategies

PARKING STRATEGY - HYBRID

**Downtown Boundary**

**Project Study Area**

**Legend**

- **Downtown Montpelier Boundary**
- **Parcel Boundary**
- **Parallel Parking**
- **Angled Parking**
- **Flexible Parallel Parking**
  (can close for events)
- **Remove Parking**
- **Large, Raised Beds**
  (potential perennials)
- **Tree Grates**
- **Tree Grates with Protected Bike Lanes**

**Proposed Parking Strategy**

<table>
<thead>
<tr>
<th>Street</th>
<th>Existing Spaces</th>
<th>Proposed Spaces</th>
<th>Net Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langdon Street</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>East State Street</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>State Street (E of ELM)</td>
<td>26</td>
<td>18-20</td>
<td>6-8</td>
</tr>
<tr>
<td>State Street (W of ELM)</td>
<td>14</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Barre Street</td>
<td>25</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Main Street 1</td>
<td>17</td>
<td>17</td>
<td>0</td>
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<tr>
<td>Main Street 2</td>
<td>33</td>
<td>37-39</td>
<td>4-6</td>
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<tr>
<td>Main Street 3</td>
<td>29</td>
<td>22-25</td>
<td>4-7</td>
</tr>
<tr>
<td>Main Street 4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total Parking Counts (Approximate)**

- **Existing Spaces**: 199
- **Proposed Spaces**: 164-180
- **Garage Public Spaces (Hotel half full)**: 65
- **Garage Public Spaces (Hotel full)**: 18
- **Net Gain (Hotel half full)**: 30-46
- **Net Loss (Hotel full)**: 1-17

Note: Existing, mature street trees will be incorporated into the new streetscape where feasible.

Note: No changes to parking and/or street trees are proposed in areas that are not highlighted.

Note: All proposed street trees are to be located within a band of permeable pavers with potential soil cells.

Note: Existing, mature street trees will be incorporated into the new streetscape where feasible.
CHAPTER 4 - RECOMMENDATIONS

INTRODUCTION

fd$f$fd
LAND USE

OPEN SPACE AND INFILL APPROACH

Open Spaces within the Downtown Core

The general lack of open space within the study area became a central element that the conceptual planning addressed. While Blanchard Park and Guertin Pocket Park are near the study area, it is only recently, through the community's efforts to expand the multi-use path and plan for Confluence Park, that more civic-focused open spaces are being established. Recognizing this reality, the study considered three core strategies for expanding open spaces within the core.

Open Space Strategy A – Focus on “Civic”: While open spaces can come in a variety of forms, an emphasis on open space as civic space should be prioritized within the study area. Given that Montpelier's downtown is relatively small, the types of open spaces that are most likely to fit include:

Public Realm – Improvements associated with new streetscapes or pocket parks within infill locations that are highly accessible and visible. These open spaces support opportunities for outdoor dining, small gatherings and the placement of outdoor art, in locations where these public functions have an empowering impact on adjacent commercial enterprises. The streetscape designs presented in this plan include examples of pocket parks, provide outdoor seating areas, and in the case of Langdon Street, establish a “festival” street that creates an intersect between the public and local businesses.

Public Plazas – More defined and structured open spaces that are integrated within the urban fabric and defined, in part, by the architecture that surrounds them. These spaces are meant for congregation and events and become focal points within the community. This plan envisions two main public plazas; City Hall and Rialto Bridge. Both spaces are highly prominent, associated with established landmarks, and would include seating, lighting, and features (special materials, design elements, art, etc.) that define them uniquely within the public realm.

Riparian Open Spaces – More naturalized areas along the North Branch or Winooski River that function as park space, enhance recreation, support flood resiliency, and afford opportunities for integrated stormwater treatment options. The key to these spaces is to assure that they are connected to the public through new paths and walkways. While flood management policies preclude the establishment of new structures such as cantilevered river walks within the river corridor itself, the city's establishment of buffer zones along the rivers functions as a linear park. Such parks offer city residents a chance to connect with the waterways that have shaped the community since its founding. Recent design studies for Confluence Park highlight the opportunity to reclaim the river frontage as riparian open space.
Open Space Strategy B – Connect with the North Branch: As eluded to in Strategy A, the rivers that define Montpelier are a central organizing idea in the development of this plan. The establishment of a riparian zone within the core which prioritizes open space and public connectivity is vital. While the existing development standards establish riparian areas (Section 3005) and place significant emphasis on naturalized riparian buffers, development within the Urban Center 1 district can be set at the top of bank along the North Branch. The codes “Riverfront Standards” (Section 2101F) encourages applicants to provide “public walkways, multi-use paths, outdoor seating, and similar public amenities along the river”. These provisions make sense, but perhaps could be strengthened and considerations made to whether compliance with the groundcover standards is necessary if the riparian zone remains open to the public and includes stormwater features that offset increased impervious surfaces.

Open Space Strategy C – Make Open Spaces Functional: While it is often desirable to place paramount emphasis on the preservation aspect of open space, in the context of the downtown core, a strong emphasis should be on making open spaces functional. As the city’s development standards currently recognize, open spaces (including water setback areas) are often needed for snow storage and stormwater treatment. The streetscape designs presented in this plan also recognize this. As new infill is pursued and open spaces established, assure that they, to the degree possible, provide three critical functions: support public gathering or recreation, connect to other established open spaces or to the public realm, and enable broader stormwater and flood resiliency initiatives.

Infill within the Downtown Core
The analysis conducted in the development of this plan did not identify many clear opportunities for infill redevelopment within the downtown core. With the recent initiatives to develop the Capital Plaza lot, one of the major underutilized tracts within the study area is moving forward.

While specific opportunities for redevelopment are less certain, the study recommends two strategies for addressing infill as it relates to the placemaking aspects of this plan:

Infill Strategy A – Make Parking the Priority, for Now: As described elsewhere in this plan, the two streetscape design concepts seek to balance the space needs for pedestrian and bicycles, trees and plantings, and parking. Great deference was given in the concepts to parking, knowing that its availability is vital to support local businesses. This plan also acknowledges that the importance of parking will undoubtedly change in the coming decades with increasing public transportation, greater focus on multi-modal transportation solutions, and automated systems that might make parking obsolete. Promoting greater structured parking within underutilized lots is the right strategy during this period of change. The city’s ongoing investments in parking and transit enable future streetscape design to take even bolder strides in reclaiming space for outdoor gathering, green infrastructure, or urban canopy. The design concepts explored in this plan are structured to leverage this transition.

Infill Strategy B – Assure Street Activation: While only a handful of undeveloped parcels exist along the major streets, as new infill development is considered, a strong priority on maintaining street activation should be made. With higher densities and heights, it is possible that some rather narrow and tall structures are necessary to conform to the limited lot dimensions. In these cases, regardless of the mix of uses sought, it is very important that the street façade promote a high degree of activation. The general consistency of the current building lines on Main and State Street, could benefit from some undulation or variety. The promotion of forecourts that shift the ground plane back from the street adds to the public realm and helps set the structure apart. Assuring that redevelopment brings new structures forward, places parking in the rear, and where needed, creates gateway features such as art or wayfinding, will help assure new infill helps stitch together the city’s urban fabric.
Chapter 4 - Recommendations

- Clear invasive species
- Install erosion & flood protection
- Re-vegetate riparian edge
- Widen vegetated buffer
- Incorporate multi-use path & park features (see Bike-Ped map)
- Incorporate stormwater treatment (see Stormwater map)

- Consolidate and simplify lot layout and circulation to reduce impervious surface area without reducing the number of spaces
- Incorporate stormwater treatment (see Stormwater map)

- Adaptive reuse of existing buildings where applicable
- Infill where applicable (see Infill Opportunities map)
- Pedestrianize alleyways to facilitate connectivity where applicable

- Refer to Chapter 4 for improvements to the streetscape zone

GRAPHIC SECTION OF WINOOSKI RIVER TO STREET
PARKING CONSIDERATIONS

Parking is a divisive topic in Montpelier. While many believe a lack of available parking in the downtown undermines the financial viability of downtown businesses, others believe that the needs of pedestrians and bicyclists should be prioritized over automobiles and parking convenience.

Although the local business owners can all agree that parking availability is important, some believe that there is value in creating a more walkable and attractive downtown core with outdoor seating and dining opportunities, even if that requires losing some on-street parking spaces. The idea is that such enhancements will encourage more people to visit and stay downtown longer.

*Streetscape proposals that represent significant losses of on-street parking would only move forward with the construction of the parking garage.* The concepts developed for this project are designed to support the downtown’s continued demand for on-street parking while envisioning a future where a higher percentage of long-term parking is consolidated off-street. The design concepts are also considerate of a future where the prevalence of cars is reduced by improved regional transit and use of alternative mobility.

Based on the Proposed Capitol Plaza Hotel and Parking Garage Traffic Study (RSG, 2018), 185 surface parking spaces are being replaced by the proposed parking garage containing 348 parking spaces, resulting in a net gain of 163 new parking spaces. Garage parking spaces that are not in use by the hotel will be available for pay-by-the-hour use by the public. So, if the hotel is full, there will be 18 net new spaces available for the public, and if the hotel is half-full, there will be 65 net new spaces for public use.

This would help offset the demand for long-term parking (employees, residents) on-street, allowing more of the streetscape to be used by pedestrians and for short-term parking (visitors, shoppers). It should also be noted that the hotel at full capacity will provide 94 parking spaces for hotel guests, and many of these people will spend money shopping and dining downtown.

**Additional ways to address parking issues:**

- Improve signage for off-street parking to be less confusing for visitors (replace “Permit Only” signs with “Pay to Park at Kiosk”) and provide digital indicators at parking lot entrances to indicate parking space availability.
- Explore financial incentives to reduce single-occupancy vehicle trips for commuters through the creation of a Transportation Management Association (TMA).
- Work with the State to address parking supply and demand.
- Consider additional structured parking opportunities.
- Add short-term, 15-30 minute “pull off” spaces in key locations.
- Raise rates for short-term parking, diverting the long-term parking demand to more off-street locations.
- Work with local business owners to free up private parking lots for public use during evenings and weekends (outside normal office business hours).

EXISTING PARKING FACTORS

*Seasonal demand for long term parking is based on the legislative session*

*Demand for long term parking is highest during the midday period (10:00am to 2:30pm)*

*On-street demand in the core downtown is approaching or exceeding 85% occupancy*

*(2015 memo from Planning & Community Development to City Council)*
Parking photos
### STREETSCAPE

<table>
<thead>
<tr>
<th>EVALUATION CRITERIA</th>
<th>CONCEPT A</th>
<th>CONCEPT B</th>
<th>BASIS FOR RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking availability</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option with more on-street parking spaces overall.</td>
</tr>
<tr>
<td>Bicyclist accommodations</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that provides a higher comfort level for a wider range of bicyclists.</td>
</tr>
<tr>
<td>Pedestrian flow</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that provides wider sidewalks to comfortably accommodate higher volumes of pedestrians and allows more sidewalk space for merchants to use without blocking an accessible pedestrian clear zone.</td>
</tr>
<tr>
<td>Tree environment/health</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that provides a better growing environment for trees that will make them more likely to reach a mature canopy size.</td>
</tr>
<tr>
<td>Placemaking</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that provides more space for public gathering (seating and/or outdoor dining) adjacent to sidewalks and creates a more distinct and vibrant character.</td>
</tr>
<tr>
<td>Construction cost</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that costs significantly less to construct.</td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that requires less effort and cost to maintain.</td>
</tr>
<tr>
<td>Snow storage</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that facilitates easier snow storage while preserving clear walking paths.</td>
</tr>
<tr>
<td>Water quality improvement</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that provides for a higher water quality improvement for stormwater that makes its way into the adjacent rivers.</td>
</tr>
<tr>
<td>Public preference</td>
<td></td>
<td></td>
<td>A higher rating would be given to the option that received more positive feedback from the public process (community meeting and online survey).</td>
</tr>
</tbody>
</table>

**Key**
- Higher Rating
- Similar Rating
- Lower Rating
Chapter 4 - Recommendations

Parking availability:
There is no significant difference in terms of parking count between Option A and Option B overall, although Option B maintains more convenient on-street parking on State Street.

Bicyclist accommodations:
Option B includes dedicated bike lanes on Main Street, which are grade-separated from the street, and this is appealing to many residents. Although Option A does not provide dedicated bike lanes (just sharrows and potentially a lower speed limit), an alternative north-south bike route could be provided on Elm Street as part of the Option A plan. If Elm Street becomes one-way (heading south), a two-way cycle track could be constructed without loss of parking. Connectivity from Elm/State to the River Path could be provided by a shared use path along the proposed parking garage. This option would provide a less congested means of north-south bike travel with less potential for conflicts with pedestrians and vehicles. Despite being at sidewalk grade, bike lanes on Main Street would have potential safety issues due to the high level of vehicular and pedestrian traffic:

- Potentially poor visibility of bicyclists as cars turn into driveways/alleys off Main Street (additional parking spaces may need to be removed to maintain clear sight lines from the road)
- Potential conflicts between bikes and pedestrians walking to and from cars parked on Main Street

Both options include the following proposed enhancements to improve conditions for bicyclists:

- Shared use path on Barre Street
- Painted “bike boxes” at signalized intersections
- Alley closures along Main Street to reduce potential vehicular conflicts
- Bike nodes (bike parking, bike share, etc.) to intercept bicyclists at key locations entering the walkable downtown core

*See Bike/Pedestrian Opportunities plan

Pedestrian flow:
While in general the sidewalk widths are similar for Option A and Option B, Option A has an edge in terms of pedestrian flow. The wider tree belt with pavers proposed in Option A for Main Street and State Street (east end) provides more useable pedestrian space. The flush curb condition proposed for Langdon Street (and potential to close to vehicular traffic) provides an opportunity for a unique street that caters to pedestrians.

Tree environment/health:
With large curbed planters, Option A would provide a healthier growing environment for trees. The curbing would provide protection from sidewalk plows and block salt runoff from the sidewalks. Trees can eventually outgrow tree grates and become girdled. The larger planting beds would require less underground planting soil (soil cells or structural soil) than trees in tree grates. Option A would also provide more space between the trees and the building facades on Main Street, thereby allowing for a wider mature tree canopy.

Placemaking:
The wider tree belt with pavers in Option A provides more space for seating and/or outdoor dining adjacent to the sidewalk, which would help enliven the downtown core. In addition, the character of the curbed planting beds with larger trees and colorful understory plantings would create a more unique character compared to tree grates. The plaza-like treatments for a number of sections of street (Rialto Bridge, City Hall, Langdon Street) would elevate these streetscapes to be more memorable and conducive to public outdoor events.

Construction cost:
Option B would likely be less costly to construct overall. The main factor in making Option A costlier is the need for additional bike infrastructure off Main Street to provide a safe north-south connection to the River Path (although those connections would be desirable for Option B as well). Option A also includes costlier pavement treatments through the streets in some locations.

Maintenance:
Option A has an advantage in terms of maintenance due to the lack of grade-protected bike lanes, which would need to be kept clear of snow and ice for year-round use. The cycle track in Option A could be plowed along with the road, so that would not create much additional maintenance. Although Option A would require extra planting maintenance if perennials or annuals are used in the curbed tree planters, this option includes far fewer tree grates, which have proven to be a maintenance challenge for Parks Department Staff.

Snow storage:
Option A provides a large and more convenient location for snow storage with its wider tree belt and lack of dedicated bike lanes. The grade-separated bike lanes in Option B are directly adjacent to the roadway curb and would need to be kept clear of snow and ice for year-round use.

Water quality improvement:
The water quality modeling suggests that Option A and Option B would have very similar effects in terms of removal of phosphorus from stormwater making its way into the adjacent rivers.

Public preference:
Option A was preferred unanimously at the community meeting and was preferred by a very slight margin over Option B in the online survey. Comments in support for Option A praised the emphasis on pedestrians and placemaking, while most support for Option B focused on the protected bike lanes (a cycle track on Elm Street has since been added to the Option A proposal).
STREETSCAPE FINAL RECOMMENDATIONS

Option A overall represents the fundamental strategy that is recommended for the streetscape in the downtown core, with some modifications to the original plans that were shared with the public:

- Maintain on-street parking on State Street east of the Rialto Bridge, per Option B. The plaza-like treatment for the Rialto Bridge that is proposed in the Option A plan is recommended, but the 10 convenient on-street parking spaces could be maintained (see hybrid plan, p. X). The pattern of tree grates that is established elsewhere on State Street (necessitated by a narrower ROW) would continue all the way to Main Street, although narrower curbed planters could be considered as an alternative to tree grates. Due to the unnecessarily wide travel lanes currently existing in this stretch of State Street, additional sidewalk space would be provided by narrowing the roadway. This represents a balanced approach to enhancing the pedestrian experience while responding to the concerns of some business owners for parking convenience. There would continue to be opportunities for a temporary parklet space in these parking spaces, which provides a flexible approach to providing outdoor dining.
- Add more trees. The typical spacing of street trees will ultimately be dependent on the spacing of new streetlights. New LED lighting technology with improved photometrics has allowed for consistent light distribution with wider spacing of fixtures. Lights could be spaced as far as approximately 80’ on center (as compared with 60’ depicted in the plans), which could allow for a typical pattern of two trees spaced approximately 40’ on center between streetlights. This would increase the number of trees by up to 50%. In addition to coordination with the street lighting, determining the ideal spacing and quantity of trees should consider a range of factors:
  ◦ Maintenance. Caring for the urban forest takes resources.
  ◦ Shade. Shade is key for pedestrian comfort on hot summer days, but too much continuous shade may not be desirable
  ◦ Visibility of historic building facades. Some downtowns lacking in architectural character benefit greatly from the visual screening provided by tree canopies, but Montpelier doesn’t have this need. Maintaining some level of visibility of the historic facades that contribute to the downtown character is important.
  ◦ Environmental. Trees provide environmental benefits, including uptake of stormwater, filtration of pollutants in the root zone, and improved air quality, among others.
- Include a cycle track on Elm Street. Without dedicated bike lanes on Main Street, Elm Street and the proposed shared use path connection to the River Path will provide an important north-south bike route. This approach avoids the congestion and potential conflicts inherent on Main Street.

SUMMARY

The modified Option A strategy for the streetscape is overwhelmingly preferable based on the criteria established for this project. This design approach would significantly elevate the character and “sense of place” in the downtown core. Large canopy trees, colorful understory plantings, extensive sidewalk space for outdoor seating/dining, and pedestrian-oriented plaza spaces would make visiting downtown a more memorable and enjoyable experience. A balanced approach to parking ensures that adequate on-street parking is provided while still providing greatly improved amenities for pedestrians and bicyclists alike. Appropriate materials and furnishings would enhance the historic character of the downtown, while custom art installations in key locations would maintain the creative spirit that in part defines Montpelier today. All combined, these improvements would help enhance the economic vitality of the downtown core, which already has so much to offer to locals and visitors alike.
Chapter 4 - Recommendations

**PARKING**
Most of the parking on State Street remains, except where pedestrian improvements take priority.

**LIGHTING**
Pedestrian-scale light fixtures enhance safety and complement the downtown’s historic character.

**TREE BELT**
5x5’ tree grates are a balanced approach to greening that allows room for on-street parking. Permeable pavers over soil cells allow stormwater to infiltrate down to tree roots.

**WIDER SIDEWALKS**
Widened sidewalks provide a minimum of 3’ usable space for businesses while keeping an open travel lane for pedestrians.

**THE RIALTO BRIDGE**
The bridge becomes a public gathering space where people can sit and view the river. A raised, curbless, brick-paved section of street accentuates this unique moment in the City where the public realm of the street intersects the ecological realm of the river.

**SHARED LANES**
Well-marked shared lanes support cyclists while keeping the width of the road down.

HYBRID STREETSCAPE PLAN - STATE STREET
MATERIALS AND FURNISHINGS

The recommended streetscape solutions outlined in this plan use materials and furnishings that would embellish and enhance the existing character of Montpelier’s historic downtown, inspired by three guiding observations. Montpelier is a classic, small, historic city in New England, with a wonderfully intact collection of brick and stone buildings from the nineteenth century. The ongoing, regional significance of stonemasonry is evident in the amount of local granite on display in building facades, but it could be expressed more strongly in the public landscape. The design of the City’s public realm should be inspired not only by its history, but also by the people who live and work there today. Montpelier has evolved into a vibrant and eclectic community with artistic and environmental sensibilities, which is evident in its storefronts, public art and pop-up parks. Working together, these ideas begin to paint a picture of Montpelier’s future downtown, using a palette of materials that embellishes its historic architecture and expresses the spirit of its community.

Any future investment in the improvement of Montpelier’s public landscape ought to stand the test of time. In addition to selecting materials and furnishings with appropriate character, consideration should be given to maintenance and durability. Materials should be selected that are resistant to damage from de-icing salts, plowing, and the intensive use associated with a downtown environment.
Chapter 4 - Recommendations

A CAPITAL IDEA!

MATERIALS AND FURNISHINGS PLAN

Trees in Raised Soil Beds
Wide soil beds are excellent for street trees, with ample root volume and good water infiltration. Elevating the beds with curbs prevents tree damage from plows and trampling. Granite curbs make use of a local material throughout the downtown.

Concrete Pavement
Easy on the eye, easy to plow, and helps to organize the pedestrian zone.

Permeable Clay Pavers
Durable, with a traditional character that complements Montpelier’s historic buildings. Permeability allows water to infiltrate into soil cells below, supporting the root systems of street trees.

Benzes
A balance between traditional and modern styles fits well in a historic downtown that’s moving forward.

Pedestrian-Scale Lighting
Traditionally styled pole lights improve walkability and enhance the historic character of the downtown.

Tactile Pavement
Where the street is raised and curbless, tactile pavement signals the edge of the pedestrian zone to the visually impaired.

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### IMPLEMENTATION MATRIX

<table>
<thead>
<tr>
<th>Street**</th>
<th>Project Scope</th>
<th>Other Considerations</th>
<th>Priority</th>
<th>Timeframe for Implementation**</th>
<th>Order of Magnitude Construction Cost</th>
<th>Steps Required for Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State Street</strong></td>
<td><strong>Segment 1: Taylor St to Elm St</strong></td>
<td>Sidewalk widening, tree belt expansion, sidewalk furniture, decorative street lights, stormwater treatment, bike node, shared lanes</td>
<td>Discuss utility replacements with DWP (Water/Sewer Mains) (for full depth reconstructed areas); traffic management during construction</td>
<td>Medium</td>
<td>3 to 7 years</td>
<td>$2 M</td>
</tr>
<tr>
<td></td>
<td><strong>Segment 2: Elm St to Main St</strong></td>
<td>Sidewalk widening, sidewalk furniture, decorative street lights, tree belt expansion, stormwater treatment, shared lanes</td>
<td>Align with Rialto Bridge reconstruction (build one side of bridge at a time for construction phasing; maintain one way alternating traffic during construction with alternate detours); Discuss utility replacements with DWP (Water/Sewer Mains) (for full depth reconstructed areas)</td>
<td>High</td>
<td>1 year for sharrows and street light decorations; align signage with Pitkin/Blanchard path project; 1 to 3 years for realigning crosswalk</td>
<td>$3 M</td>
</tr>
<tr>
<td></td>
<td><strong>East State Street</strong></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td><strong>Main Street</strong></td>
<td></td>
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<td></td>
<td><strong>Segment 1: Memorial Dr to Blanchard Ct</strong></td>
<td>Sidewalk widening, tree belt expansion, decorative street lights, sidewalk furniture, grade separated bike lanes or shared use lanes, stormwater treatment, new traffic signal</td>
<td>Discuss utility replacements with DWP (Water/Sewer Mains) (for full depth reconstructed areas); traffic management during construction; consider path connections thru Blanchard/Pitkin Lots</td>
<td>Medium</td>
<td>Align with rail crossing improvement project</td>
<td>$3 M</td>
</tr>
<tr>
<td></td>
<td><strong>Segment 2: Blanchard Ct to Langdon St</strong></td>
<td>Sidewalk widening, tree belt expansion, decorative street lights, sidewalk furniture, grade separated bike lanes or shared use lanes, stormwater treatment</td>
<td>Discuss utility replacements with DWP (Water/Sewer Mains) (for full depth reconstructed areas); traffic management during construction</td>
<td>High</td>
<td>3 to 7 years</td>
<td>$3 M</td>
</tr>
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<td></td>
<td><strong>Segment 3: Langdon St to School St</strong></td>
<td>Roundabout construction at School St, sidewalk widening, tree belt expansion, decorative street lights, sidewalk furniture, grade separated bike lanes or shared use lanes, stormwater treatment</td>
<td>Discuss utility replacements with DWP (Water/Sewer Mains) (for full depth reconstructed areas); traffic management during construction</td>
<td>Medium</td>
<td>3 to 7 years</td>
<td>$2 M</td>
</tr>
<tr>
<td><strong>Barre Street</strong></td>
<td><strong>Short Term: Buffered Two-Way Bikeway</strong></td>
<td>Restriping for on-street two-way cycle track</td>
<td>Traffic management during construction</td>
<td>High</td>
<td>1 year</td>
<td>$50 K</td>
</tr>
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<td></td>
<td><strong>Long Term: Shared use path</strong></td>
<td>Shared use path, sidewalk widening, tree belt expansion, sidewalk furniture, decorative street lights</td>
<td>Discuss utility replacements with DWP (Water/Sewer Mains) (for full depth reconstructed areas); traffic management during construction</td>
<td>High</td>
<td>3 to 7 years</td>
<td>$200 K</td>
</tr>
<tr>
<td><strong>Elm Street</strong></td>
<td></td>
<td>Restriping for on-street two-way cycle track, convert street to one-way south, no lefts onto State St</td>
<td>Traffic management during construction; consider path connection southbound from Elm St to River Path</td>
<td>High</td>
<td>1 year</td>
<td>$25 K for pilot, $75 K for permanent</td>
</tr>
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<td></td>
<td><strong>Langdon Street</strong></td>
<td>Sidewalk widening, stormwater treatment, curbed street, decorative paving, public art, pop-up seating, decorative street lights</td>
<td>Discuss utility replacements with DWP (Water/Sewer Mains) (for full depth reconstructed areas); traffic management during construction</td>
<td>Medium</td>
<td>3 to 5 years</td>
<td>$1.5 M</td>
</tr>
<tr>
<td><strong>Other Projects</strong></td>
<td><strong>North-South Shared Use Path</strong></td>
<td>Construct north-south shared use path connecting Court St to existing east-west shared use path, crossing State St midblock</td>
<td>Property ownership/RW/ROW/easements</td>
<td>High</td>
<td>1 to 5 years</td>
<td>$350 K</td>
</tr>
<tr>
<td></td>
<td><strong>Path connection: Elm St to River Path</strong></td>
<td>Construct north-south shared use path connecting Elm St to River Path</td>
<td>Property ownership/RW/ROW/easements</td>
<td>High</td>
<td>1 to 5 years</td>
<td>$250 K</td>
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<td></td>
<td><strong>Pitkin &amp; Blanchard Shared Use Path</strong></td>
<td>Shared use path from E. State St to Main St and Barre St. Improve vehicular and bike/ped circulation w/ reconfigured parking. Reestablish street frontage for buildings east of lots. Includes cold planing and repaving existing bituminous asphalt surfaces, restriping, major curb line and drainage adjustments, stormwater treatment, and landscaping</td>
<td>Include Blanchard Park Trailhead: Build new trail into park from Pitkin Lot and add signage.</td>
<td>Medium</td>
<td>3 to 7 years</td>
<td>$1 M</td>
</tr>
</tbody>
</table>

*Segment breaks made to include major intersections within segments for constructability, while using minor intersections as natural breaks

**Includes engineering, design, permitting, construction

1 Based on recent construction bids for Waterbury Main St, including new water & sewer, drainage, streetscape, signals, and temporary traffic control during construction

2 If grade separated bike lanes are preferred, consider constructing segment from School St to Barre St.

3 Costs from D&B Main and Barre Scoping Study (2019) short & long term alternatives for Barre Street

4 Assumes most of road is reconstructed for stormwater treatment

5 Based on $350 per foot for 201FT SU path from Vtrans Report on Shared-Use Path and Sidewalk Costs (2020)
Chapter 4 - Recommendations

STORMWATER

MANAGEMENT OPPORTUNITIES

- 9 best management practices (BMPs) that manage 14.3 acres of impervious cover were assessed. They consisted of:
  - 4 rooftop capture and filtration practices and
  - 5 largescale detention and filtration practices

- Some of these BMPs are proposed on private property and landowner buy-in will be key in successful implementation.

- Two modeling scenarios were assessed. The first scenario manages the first inch of runoff during a storm event. This storm event is known as the water quality volume as this first inch of runoff washes off the majority of pollutants from the ground and transports those pollutants to surface waters. The second assessed scenario optimizes the size of the BMPs for cost efficiency while ensuring that at least 60% of the annual total phosphorus load is managed.

- Under the first scenario, 19.8 lbs of total phosphorus is estimated to be mitigated by these BMPs annually. The size of these BMPs is larger than the second scenario and as such costs are higher.

- Under the second scenario, 16.6 lbs of total phosphorus are estimated to be mitigated annually. The size of these BMPs is smaller than the first scenario and the costs are likewise lower.

- It is recommended that the second scenario be pursued as it maximizes water quality benefits while minimizing cost.

Street Tree Filtration Systems and Raised Planters

- Streetscape scale management of the study area is proposed through street trees planted in stormwater filtration media and large planter beds. Permeable pavers are proposed between practices to convey stormwater runoff from sidewalks to the treatment features. For the roads with proposed streetscape stormwater management, the sidewalk length treated (1 mile) remains the same between concepts, but the distribution and density of treatment features varies between the two concepts.
  - Concept A includes approximately 40% tree filters and 60% planter beds.
  - Concept B includes 100% tree filters and no planter beds.

- Both concepts manage the majority of the sidewalk area in the study area, though costs and aesthetics will vary from Concept A to Concept B. It is expected that both scenarios will result in a reduction in total phosphorus (TP) loading of approximately 2.9 lbs. per year.

- The proposed streetscape stormwater management practices are beneficial for water quality and the final design of these practices should maximize total phosphorus reduction.

Key Considerations:

- In both scenarios, tree filters will need to be watered during drought periods to ensure that trees are not stressed by lack of water. Drought tolerant street trees should be selected.

- It should be noted that the large-scale stormwater management opportunities described previously provide a greater water quality benefit than the streetscape practices. For Concept A and B, a comparatively small amount of impervious cover (1.7 acres) is managed as compared the larger BMPs, which manage more than 14 acres of impervious cover. However, many of these larger practices are on private land and may be difficult to implement, while the streetscape practices are located within the City's right of way and can be implemented in coordination with the other proposed road related retrofits.

Riparian Buffer Enhancements

- Riparian buffers, which filter stormwater pollutants flowing into the rivers and stabilize riverbanks, are proposed along the western and the eastern banks of the North Branch Winooski River and along the Winooski River.

- Two buffer width scenarios were assessed: (20ft and 25ft), and two buffer vegetation types were considered (grass and forested).

- Annual total phosphorus reductions for the 25ft buffer for the grassed and forested condition was estimated to be 0.57 lbs and 0.77 lbs respectively for the western buffer and 0.73 lbs and 0.89 lbs for the eastern buffer respectively.

- In general, the wider the buffer and denser the vegetation, the higher the total phosphorus reduction expected from the buffer. Buffer efficiency can be maximized at narrower widths by increasing vegetation density.