

Completing Potsdam's Streets – Pedestrian Infrastructure as the Catalyst for Social and Economic Renewal in the Village Core



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I. Overview

This report is analysis of the possibilities for the implementation of complete streets in the Village of Potsdam, NY. Erik Backus¹ and Bill Olsen² met with me in the final weeks of the 2015 fall semester to discuss the possibility of a GIS independent study, and Erik presented the idea of continuing Greg Lang's previous study³ on improving pedestrian infrastructure in the Village of Potsdam. Erik and I met with Fred Hanns⁴ the following January to discuss the project proposal, and I met with Fred two more times during the course of the 2016 spring semester to discuss my findings and ideas. I presented my proposal to the village planning board on February 4th, and presented tentative results on April 21st. I attended a Complete Streets workshop in Massena, NY on April 6th, and the information I gleaned from the presenters and referenced materials significantly framed the focus of this study. This report encapsulates the research I conducted on Complete Streets, and my proposed improvements to Potsdam's roadways based upon my findings. This study is focused on the premise that the revitalization of Potsdam's village core is entirely dependent upon improving pedestrian infrastructure.

II. Imagining a Better Future – Why Potsdam Needs a Comprehensive Complete Streets Plan

A casual stroll down Market Street in Potsdam is enough of a cultural transect to understand the plight of the local economy – small businesses are suffering, and talking to the hold-outs, the current projection is grim. There is no simple explanation for our waning local commerce, and as such, there is no simple solution. However, there are distinct factors that are playing a contributing role to the decay of local businesses in Potsdam and across the country, some of which, unfortunately, are beyond a municipality's control, but there are others that fall within local control, albeit, requiring coordinated effort with several ounces of imagination. If the Village of Potsdam and its constituents desire a more economically, aesthetically, and culturally vibrant downtown, then the ultimate goal should be fairly unanimous – more people need to be on the sidewalks, looking through storefront windows, and opening their wallets. To reach this vision, however, our streets need to be completely reinvented in order to completely provide for all modes of traffic.

It's easy to identify the factors that are inexorably wilting local economies across the United States: big box stores offering low prices and incredible volume, internet sales and expedited shipping replacing the need for local providers, modern home entertainment usurping the desire for live interaction...the list goes on. With the advances that corporations are making with drone delivery technology, it is not difficult to imagine a world where local shops are essentially obsolete. Additionally, as a college town, Potsdam is reliant on its local institutions as economic lifeblood, but as local businesses can attest to, students are venturing out of campus less and less as Universities race to tantalize prospective students with more and more amenities⁵. Between

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³ Lang, Gregory. (2015) Final Report on Strategies to Make Pedestrian and Bicycling Improvements in the Village of Potsdam, Including Facility Modifications and Positive Town-Gown Relationships. *Clarkson University*.

⁴ Director of Planning and Development, Village of Potsdam

⁵ Jacob, B., Mccall, B., & Stange, K. (2013). College as Country Club: Do Colleges Cater to Students' Preferences for Consumption? *National Bureau of Economic Research*. doi:10.3386/w18745

competition with internet sales and increasingly inclusive campuses, less people are patronizing local merchants, and the financial pipelines to the village are slowly withering.

The withering, without any doubt, will continue if nothing is done – the lamenting and eulogizing will promenade in the local papers until there are no longer any local business to disappear. However, rather than wallow in the inevitable, it's imperative that we plan and adapt, that we look at these malignant forces straight in the eye, and figure out how to respond and adapt to them. For Potsdam, there are reservoirs of possibility that can be tapped, and to get people back on the streets and spending money, it requires that we build the infrastructure that they need – we need Complete Streets. As defined by Smart Growth America⁶, “Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.” It is imperative for the Village of Potsdam to provide this safe access for all forms of traffic on its local roadways.

There are growing market forces that, with completer streets, would increase economic activity in Potsdam. March of 2015 was the first time in history that United States citizens spent more money at restaurants and bars than at grocery stores⁷. This report is one of many that substantiate the trend that America is becoming more service oriented, and day by day, the willingness to spend money on services and experiences is increasing. The surveys conducted by Greg Lang in his study of Clarkson and Potsdam students corroborate with this trend, suggesting that while students are purchasing more of their goods online, they seek services and experiences that cannot be provided for digitally, or even on campus. To reverse the current stagnation of Potsdam's business district, the local economy needs to become more service oriented, offering unique experiences that cannot be found elsewhere. In order for any business to succeed, however, infrastructure must be present in order to encourage pedestrian access, thus emphasizing the necessity of Complete Streets.

Aside from the recent reconstruction of the Maple Street bridges, the quality of pedestrian facilities in Potsdam are marginal, and in many instances, unsafe. Responses from Greg Lang's study reveal that students often ride their bicycles on sidewalks, and that their most desired improvements to village pedestrian facilities are routes, trails and bike paths. With a distinct lack of pedestrian infrastructure that is perceived as being safe, it is easy to conclude that the quality of pedestrian infrastructure directly correlates to the amount of pedestrian traffic. Safety concerns stymie foot and bicycle traffic, which either favors vehicular transportation or no travel at all. We can also assume the reverse to be true as well – if pedestrian infrastructure in Potsdam is deemed as safe and accessible, the amount of pedestrian traffic will increase. This, in tandem with supporting businesses to create more “experiences,” is essential to revitalizing Potsdam's business district.

Why does Potsdam need robust Complete Streets?

Complete Streets Enhance Pedestrian Safety

Presently, there is an acute lack of pedestrian oriented infrastructure installed in the Village of Potsdam that encourages walking and cycling. Indeed, crosswalks and sidewalks exist, but these features are designed around a model of vehicular primacy, resulting in a marginally safe experience for pedestrians. Studies indicate that 31% of drivers wish they could use other forms of transportation (such as walking or cycling) to complete

⁶ What are Complete Streets? (n.d.). Retrieved April 26, 2016, from <http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/complete-streets-faq>

⁷ “Estimated Monthly Sales for Retail and Food Services, by Kind of Business,” Table 1, Page 2. In Advance Monthly Sales for Retail and Food Services – March 2015, U.S. Department of Commerce: U.S. Census Bureau News

simple errands, but concern for safety nullifies the desire to walk or bike⁸. The surveys conducted by Greg Lang corroborate with these findings – students from Clarkson and Potsdam would be more inclined to leave their cars behind if more pedestrian oriented infrastructure was available. Thus, it is reasonable to conclude that citizens of a community value safety when determining the nature of their travel, and if safety concerns prevail, travel will default to the safest option or to no travel at all. This begs the question – what type of culture do we wish to create on our village roadways?

Potsdam can be easily characterized by its vehicle-centric paradigm, in which motor vehicles rule the road. As this report will later elucidate, many pedestrian hazards exist, and this can be easily attributed to the fact that the roads were primarily designed for speedy and efficient traffic flow, with pedestrian use and access as a mere afterthought. Design begets behavior – if roads are not designed with pedestrians in mind, the pedestrian is seen more as an impediment to traffic rather than a part of the local traffic flow. This culture is dangerous not only to the pedestrian, but also to the local businesses that depend on people walking through their doors. It is essential that a new culture is envisioned and supported, a culture where the pedestrian is seen as an equal on the roads, where our streets support the safe and efficient passage of pedestrians and vehicles. Studies show that pedestrian safety dramatically increases as the volume of pedestrian traffic increases, for once a certain “critical mass” is reached, pedestrian presence is an unavoidable reality, and motor vehicle operators come to expect pedestrians on the road⁹. Essentially, motorists learn to share, and the pedestrian presence is built into their psyche, similar to every North Country driver that vigilantly looks for deer while driving at night. Deer populations have reached a critical mass that creates a culture of awareness – we need to do the same with pedestrian traffic in the Village of Potsdam.

Complete Streets Stimulate the Economy

As discussed earlier, Potsdam is in dire need of financial stimulation to combat the increasing number of shuttered businesses on Market Street and Main Street, and with the present deleterious economic forces that local businesses are currently facing, it is imperative that the downtown area is redeveloped to increase the flow of traffic, especially pedestrian traffic. Multiple studies¹⁰ report that safe, well designed pedestrian infrastructure significantly enhances local economies¹¹. The Village of Potsdam, more than any other community, is in an excellent position to enhance pedestrian flow and business patronage by bolstering access to two massive reservoirs of potential pedestrian traffic – SUNY Potsdam and Clarkson. It is difficult to speculate the economic impact of creating a pedestrian network between the Village and its local universities, but the possibilities are endless. Students cannot purchase experiences online and have them delivered – if downtown evolves to become more of a service-based, experience-creating corridor that can be safely and enjoyable accessed, it could be safely assumed that the local economy would be healthier. Indeed, as discussed before, universities are offering more amenities to students that reduce the need to travel downtown, but how can the village compete if it cannot provide safe access? Provide the safe access and the experience, and the money will follow.

⁸ *Guide for the planning, design, and operation of pedestrian facilities.* (2004). Washington, D.C.: American Association of State Highway and Transportation Officials. Page 8.

⁹ Marshall, W. E., & Garrick, N. W. (2011). Evidence on Why Bike-Friendly Cities Are Safer for All Road Users. *Environmental Practice*, 13(01), 16-27.

¹⁰ New York City Department of Transportation. (2013). *The Economic Benefits of Sustainable Streets*. New York, NY.

¹¹ National Complete Streets Coalition. *Benefits of Complete Streets: Complete Streets Stimulate the Local Economy*. Washington, D.C.

Complete Streets Increase Public Health

With our roads governed by a culture of auto-centrism, reinforced patterns of driving also reinforce habits of inactivity. According to the CDC, roughly 80% of Americans don't get the recommended amount of daily aerobic and muscle building exercise¹², and physical inactivity is responsible for 1 in 10 deaths among U.S. adults.¹³ If our streets offer a safer and aesthetically pleasing experience to users, more cars would be left in their garages, and more miles would be traversed by foot and by bike. In a day in age where obesity related diseases are rampant, it is imperative that we provide the infrastructure to offer an opportunity to counter-act this disturbing trend.

Why does Potsdam need a comprehensive Complete Streets policy now?

To some, Complete Streets may seem like idealistic fantasy that will never be realized. These naysayers often use pejorative dismissals such as “the state DOT will never approve of this” or “this is too difficult to implement in our community” to quickly discredit any deviations from the status quo. Not only is this cynicism deleterious to effective urban renewal projects that the Village of Potsdam desperately needs, it's completely unfounded.

To address the first claim, that “the DOT will never approve if this,” let's look at the DOT's current position on Complete Streets, which can be found on their own NYS DOT Complete Streets webpage¹⁴:

Governor Andrew M. Cuomo signed the Complete Streets Act (Chapter 398, Laws of New York) on August 15, 2011, requiring state, county and local agencies to consider the convenience and mobility of all users when developing transportation projects that receive state and federal funding. The New York State Department of Transportation (NYSDOT) is working to ensure that its policies and procedures meet the new standards. The initiative presents an opportunity to expand upon existing programs and collaborate with bicyclists, pedestrians, people with disabilities and others to identify best practices and designs for transportation facilities.

And the NYSDOT also asserts the following:

The New York State Department of Transportation and local agencies - typically counties and municipalities - are responsible for implementing Complete Streets.

The law applies to projects that are undertaken by NYSDOT, or to local projects that receive both federal and state funding and are subject to NYSDOT oversight. Projects that are 100% locally funded are not subject to the law, but local agencies can choose to adopt Complete Streets practices.

Thus, not only does the NYSDOT support Complete Streets, it's responsible and legally compelled to consider Complete Streets elements when developing projects that receive state and federal funding. To say that the

¹² U.S. Departments of Health and Human Services Centers for Disease Control and Prevention. (2015). Early Release of Selected Estimates Based on Data from the National Health Interview Survey, 2014. pp 42-51.

¹³ Danaei G, Ding EL, Mozaffarian D, et al. (2009) The Preventable Causes of Death in the United States: Comparative Risk Assessment of Dietary, Lifestyle, and Metabolic Risk Factors. PLoS Med 6(4): e1000058.

¹⁴ New York State Department of Transportation. *Complete Streets*. Retrieved from <https://www.dot.ny.gov/programs/completestreets>

“DOT will never support this” is essentially opposite of the truth since Complete Streets are supported by the highest transportation agencies.

Now that it’s clear that the NYSDOT does indeed emphatically support Complete Streets, let’s address the second claim that Complete Streets cannot be easily integrated into our local communities. We don’t have to look that far down the road, ten miles to be precise, to see Complete Streets at work. The Village of Canton, in 2013, had a stretch of State Route 11 revitalized and improved for enhanced pedestrian safety and traffic flow.



Source: <https://www.dot.ny.gov/programs/completestreets/best-practices>

Complete Streets do work in our local communities, and it’s already happening. One of the most illustrative examples of successful Complete Streets implementation can be found in Hamburg, NY where, in 2009 the village overrode initial DOT construction proposals, and drafted their own proposal, which included a plethora of Complete Streets elements. The project was enough of a boon for the community that the New York Times took notice, and published an exclusive article in 2013¹⁵. The following passage highlights the success of their project:

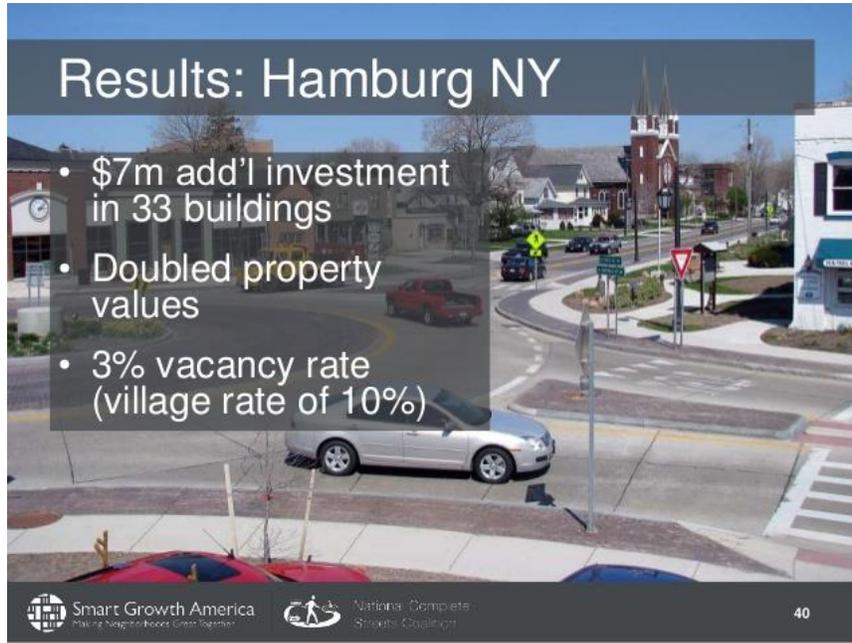
In fact, all of Hamburg’s Main Street was redesigned to slow vehicles, a technique known as traffic calming. Two lanes, instead of the three that had been planned, were built, and the lanes’ width was shrunk from 12 feet — highway-size ribbons that invite drivers to go fast — to 10 feet. That created more room for trees; on-street parking, which is good for businesses; and “safety lanes,” which provide room for drivers to open car doors safely and also serve as de facto bicycle lanes.

In the two years after the reconstruction, car accidents on the new road dropped by 66 percent and injuries by 60 percent [...] Over four recent years, business owners, inspired by the new road, spent a total of \$7 million on 33 building projects. The number of building permits rose from 15 in 2005 to 96 in 2010 and property values along Route 62 more than doubled over the same period. In 2012, the village’s Main Street was placed on the National Register of Historic Places, which brought tax incentives that villagers hope will lead to still more development.

¹⁵ Gaffneyaug, D. (2013, August 16). Widen Main St? Community Had Other Ideas, and Thrived. *The New York Times*. Retrieved from http://www.nytimes.com/2013/08/17/nyregion/widen-main-st-community-had-other-ideas-and-thrived.html?_r=0

Results: Hamburg NY

- \$7m add'l investment in 33 buildings
- Doubled property values
- 3% vacancy rate (village rate of 10%)

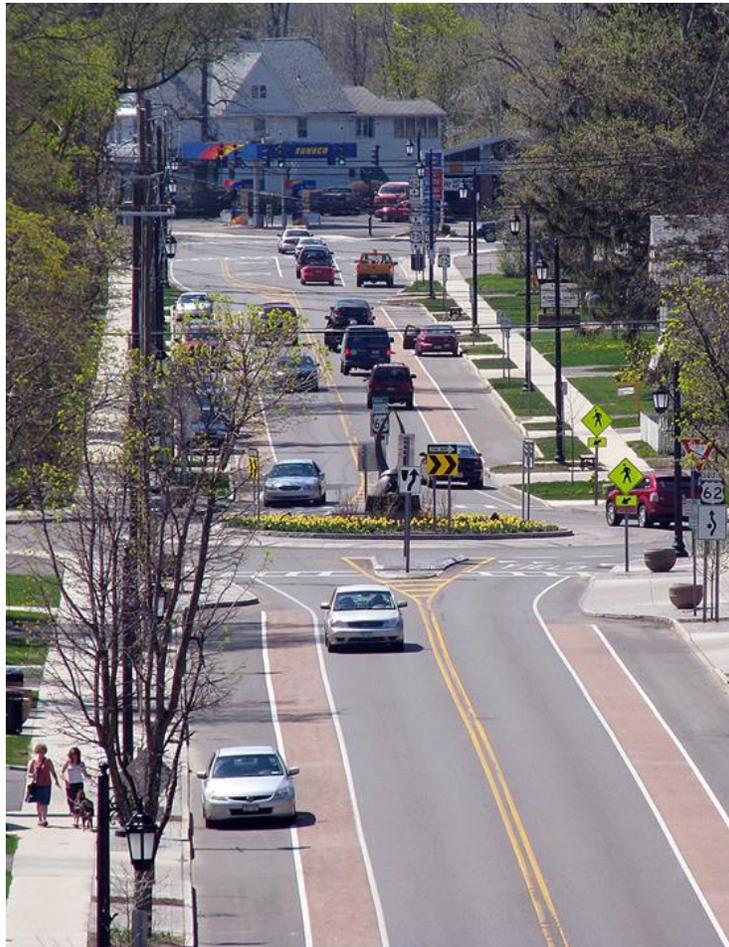


Smart Growth America
Making Neighbors, Places, and Lives Thrive Together

National Complete Streets Coalition

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Source: <http://www.slideshare.net/CompleteStreets/complete-streets-policy-development-101>

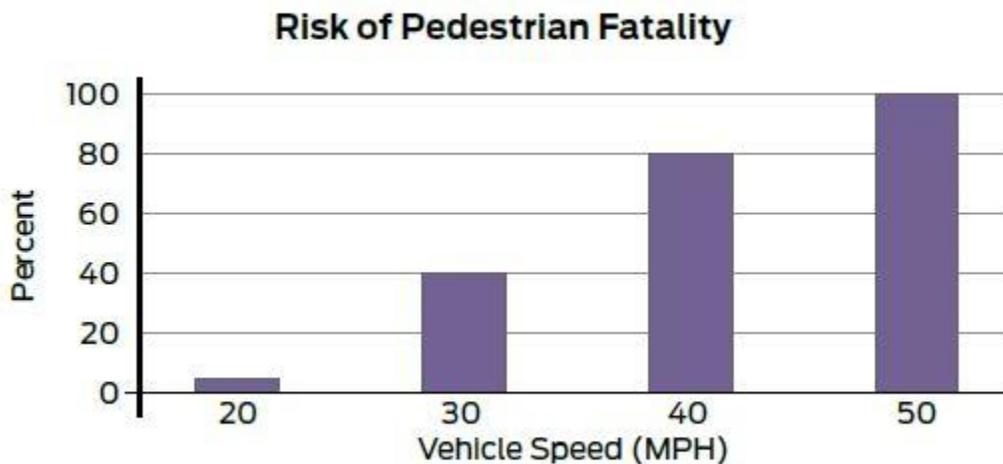


Complete Streets in the Village of Hamburg
 Source: <https://www.dot.ny.gov/programs/completestreets>

Without a doubt, Complete Streets work for communities, and it receives increasing amounts of support at a state and federal level. With this in mind, it is absolutely essential that the Village of Potsdam thinks carefully about the state of their own streets, and invest the time and effort into enacting a vision that will increase pedestrian traffic flow. Hamburg’s success story evidences the urgency of having a detailed Complete Streets policy and vision in place before the NYSDOT arrives with construction proposals. Without a vision, the NYSDOT refers to its own design metrics, which may or may not address the specific needs of that community. If a community, including the Village of Potsdam, develops a detailed plan, the NYSDOT will ultimately defer to this vision, and from what we can glean from Hamburg’s experiences, a community with a vision reaps the rewards. At this very moment, Potsdam has a choice: do something - plan for completer streets that lead to social and economic vibrancy; or do nothing – defend the status quo, essentially defending a steady rate of decay.

The Danger of Potsdam’s Incomplete Streets

As discussed earlier, the Village of Potsdam’s streets are designed for motorized traffic, but poorly designed for pedestrian traffic, resulting in pedestrian infrastructure that is marginal or unsafe. Potsdam’s downtown roadways were constructed using the principles of “design speed,” a concept discussed in the NACTO Urban Street Design Guide¹⁶, in which roadways are generally designed for maximum vehicular efficiency and flow, ultimately resulting in higher operating speeds. Wide roads, wide laneways, and large curb radii are features that facilitate high speeds, and are features that are prevalent in downtown Potsdam. Although high speeds may be favored by motorists, pedestrian safety is significantly jeopardized, ultimately increasing the severity of vehicle – pedestrian accidents, as illustrated in the following figures.



Source: *NACTO urban street design guide: Overview*. (2012). New York: National Association of City Transportation Officials. Page 24.

¹⁶ *NACTO urban street design guide: Overview*. (2012). New York: National Association of City Transportation Officials.



Source: <http://mobikefed.org/2016/03/vision-zero-how-does-it-work-eliminate-traffic-deaths-how-does-it-differ-traditional-traffic>

The following figure illustrates how vehicle speed influence’s a driver’s yielding compliance to pedestrians waiting to cross a walkway. It is quite simple to see that higher rates of speed result in less yielding behaviors, ultimately leading to higher rates of vehicle – pedestrian accidents.

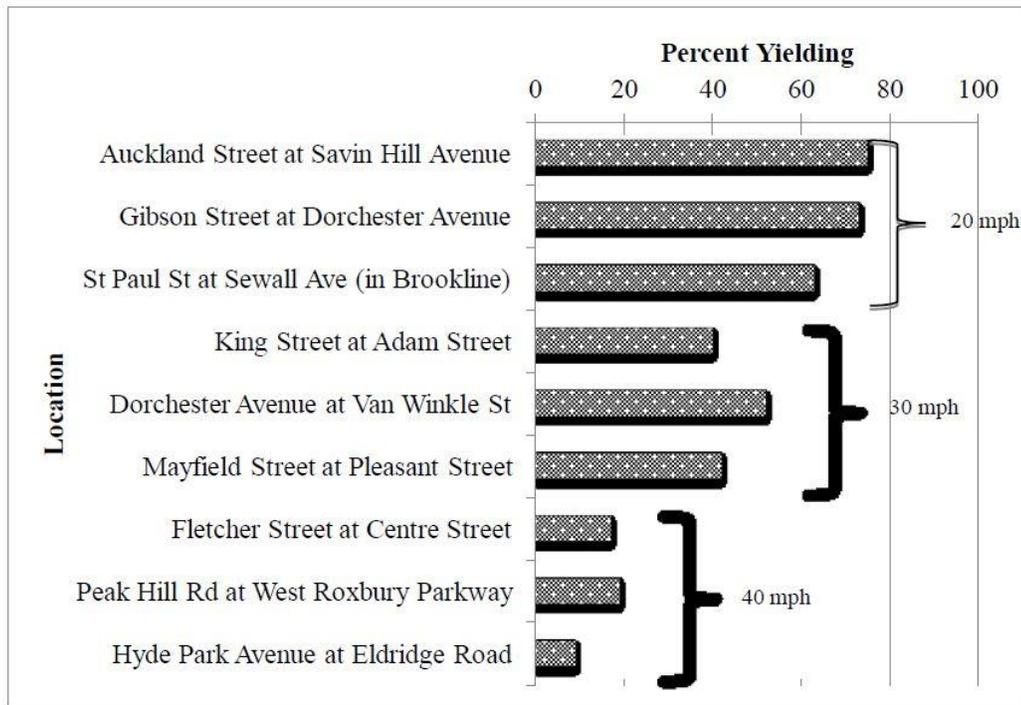


Figure 4: Driver Speed and Yielding Compliance at the Nine Study Locations in the Boston and Brookline Area

Source: Bertulis, T. & Dulaski D. (2014). *Driver Approach Speed and its Impact on Driver Yielding to Pedestrian Behavior at Unsignalized Crosswalks*.

The figure below presents another persuasive case for lowering traffic speeds, as increasing rates of speed decreases a driver's visual focus, thus making drivers less perceptive of their surroundings.

Vision Cone

A driver's visual focus diminishes as speed increases.



15 mph



20 mph



25 mph



30 mph

It is quite apparent that “design speed” is an archaic metric for road engineering that results in higher rates of speed and higher rates of pedestrian fatalities. Potsdam’s roadways are products of “design speed,” promoting higher rates of speed and risky driver behavior, ultimately all at the peril of the pedestrian. For a pedestrian culture to exist, “design speed” needs to be replaced by the concept of “target speed,”¹⁷ in which an ideal speed is carefully determined based upon the context of the specific road. Whereas “design speed” subscribes to the maxim of “design results in speed”, “target speed” inverts the model and establishes a premise of “targeted speed determines design.” In order for a road designed upon the principles of “target speed” to successfully increase the traffic flow of all modes and users, specific design tactics must be implemented to reinforce the desired speed. For Potsdam to successfully complete its streets, target speeds must be carefully considered for each road, and design elements must be installed to maintain the intended traffic pattern. This is the first and most important step in bolstering a pedestrian culture in Potsdam.

Specific Complete Streets Elements that Will Benefit Potsdam

The following list of complete street design elements have been selected as appropriate measures to enhance Potsdam’s pedestrian traffic flow, in addition to enforcing envisioned target speeds. These elements, and many more, can be found in detailed design guides published by NACTO¹⁸ and AASHTO¹⁹. These elements, when installed with sensitivity to the relationship between design and context, are proven measures and are used in communities all across the world. Many traffic calming measures in these guides are admittedly not contextually sensitive due to local factors such as snow, truck traffic, and design constraints, but the elements discussed below are, in the scope of this study, most valuable to enhancing pedestrian traffic flow in the Village of Potsdam.

Road Dieting

Road dieting is perhaps one of the easiest, cheapest, and most effective Complete Streets elements, since it merely changes the striping pattern on the road, rather than the paved surface. Roadways passing through the village center, such as Market, Elm, and Main, boast eleven to twelve-foot-wide lanes, and research clearly shows that wider lanes encourage high speeds, which increases the rate of accidents with other vehicles or pedestrians. Reducing lane widths to ten feet is a proven measure to calm traffic²⁰, increase pedestrian safety²¹, and decrease vehicular traffic accidents²². Wider lanes inhibit caution in motorists since their visual plane is less cluttered – the narrower the lanes are drawn, the more attention a driver must pay to their surroundings, therefore reducing their speed. An illustration of road dieting is shown below.

¹⁷ NACTO *urban street design guide: Overview*. (2012). New York: National Association of City Transportation Officials. Page 24.

¹⁸ *Urban Bikeway Design Guide*. (2012) New York, NY.: National Association of City Transportation Officials.

¹⁹ *Guide for the planning, design, and operation of pedestrian facilities*. (2004). Washington, D.C.: American Association of State Highway and Transportation Officials.

²⁰ NACTO *urban street design guide: Overview*. (2012). New York: National Association of City Transportation Officials. Page 27.

²¹ Potts, I., Harwood, D., & Richard, K. (2007). *Relationship of Lane Width to Safety for Urban and Suburban Arterials*. Retrieved from: <http://www.smartgrowthamerica.org/documents/cs/resources/lanewidth-safety.pdf>

²² U.S. Department of Transportation Federal Highway Administration. (2004). *Summary Report: Evaluation of Lane Reduction “Road Diet” Measures and Their Effects on Crashes and Injuries*. (Publication No.: FHWA-HRT-04-082) Washington, D.C.



Source: <http://www.annarbor.com/news/bike-lanes-road-diets-and-crosswalks-ann-arbor-officials-talk-ways-to-improve-walking-and-biking-exp/>

Bike Lanes

Bike Lanes are essential components of Complete Streets, as they visibly affirm that roadways are shared roadways.²³ Providing a designated lane for cyclists informs drivers that cyclists are present and a part of the local traffic flow, and informs cyclists that they are considered as an essential member of traffic flow and that their safety is considered.²⁴ Bike lanes are absolutely critical in establishing a pedestrian culture in a community, as the act of setting aside roadways for strict pedestrian use sends the message that pedestrians have equal primacy to vehicles. As such, with more pedestrians comfortably using the roads, motorists will ultimately expect cyclists on the road, thus increasing awareness, decreasing risky driving behaviors, and increasing cyclist safety.²⁵ Bike lanes also decrease unsafe cycling behaviors, such as riding on sidewalks, riding

²³ *Urban Bikeway Design Guide*. (2012) New York, NY.: National Association of City Transportation Officials. Page 11.

²⁴ U.S. Department of Transportation Bureau of Transportation Statistics. (2004). How Bike Paths and Lanes Make a Difference. *BTS Issue Brief*, No. 11.

²⁵ Wolfson, H. (March 21, 2011) *Bike Lanes* [Memorandum] New York, NY: Office of the Mayor.

too far into traffic lanes, or crossing improperly. Bike lanes are necessary for safely directing pedestrian and vehicular traffic flow on shared roadways.

Four Lanes w/o center turn lanes



**center turn lanes, bike lanes,
ped refuge island at bus stop**



Source: <http://www.vtpi.org/tdm/tdm122.htm>

Refuges

Refuges, also referred to as refuge medians, shorten crossing distances and times. Especially on wide, multi-lane, heavily trafficked roadways, refuges physically break up the distance for safer crossing experiences, and increase pedestrian perception of safety. Refuges are essential features for citizens who cannot physically cross a roadway in the given signal time, such as senior citizens and the disabled.²⁶



Source: <http://www.pps.org/reference/rightsizing/>

²⁶ National Complete Streets Coalition. *Complete Streets Improve Mobility for Older American*. Washington, D.C. Retrieved from: <http://www.smartgrowthamerica.org/documents/cs/factsheets/cs-older.pdf>

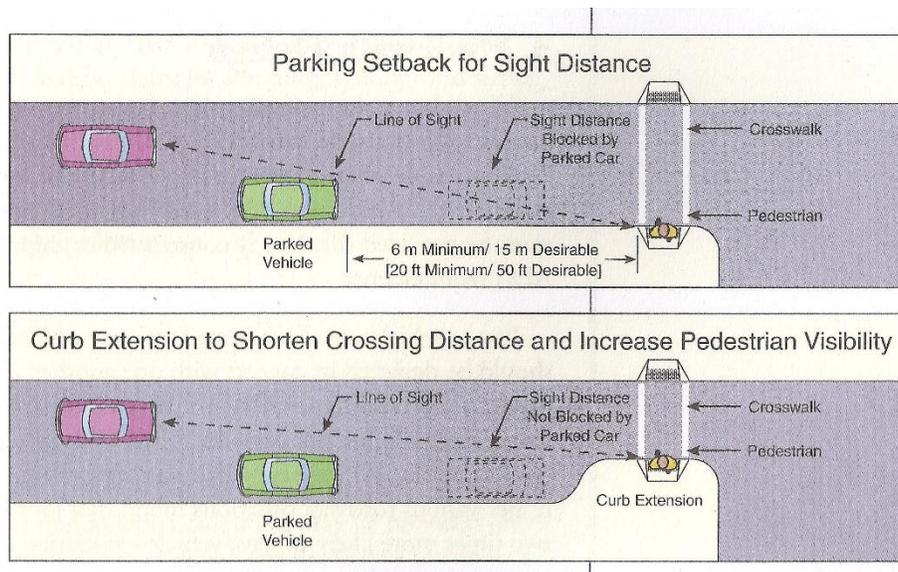
Bulb outs and Parking Setbacks

Bulb outs and parking setbacks are strategic Complete Street elements that increase pedestrian visibility at crosswalks. A bulb out, as shown in the photo below, cuts into the roadway, typically occupying a former parking space, in order to reduce crosswalk distances and to increase pedestrian visibility. Bulb outs typically include parking setbacks, as shown in the second figure below, to ensure that parked cars do not encroach on pedestrian crosswalks and limit the sight distance of motorists.



Bulb outs and parking setbacks in Canton, NY

Source: <https://www.dot.ny.gov/programs/completestreets/best-practices>



Source: *Guide for the planning, design, and operation of pedestrian facilities*. (2004). Washington, D.C.: American Association of State Highway and Transportation Officials. Page 53, Exhibit 3-3.

Using pilot projects to implement Complete Streets

Pilot projects are a very important tool for communities considering the implementation of Complete Streets elements, as pilot projects are a cheap and effective way of testing a particular complete street element before considering permanent installation. Pilot projects are incredibly cost effective due to the limited project scope and minimal investment. In most cases, a stretch of roadway under consideration for improvement is restriped (typically adding bicycle lanes and subtracting vehicular lanes), and within a designated time period, assessments of the pilot's effect on traffic patterns are made. Pilot projects are best

used for more dramatic departures from existing striping patterns and road design, as many other Complete Street elements, such as bulb outs and curb setbacks, will have little immediate impact on traffic flow. Communities all across the country are using pilot projects to test more elaborate proposals, and one in particular, Morgan Hill in California, provides an excellent example why pilot projects are necessary²⁷. This particular community limited one of its four lane roads to two lanes for a six-month period, and concluded that although a two lane model was not effective, other traffic calming measures were appropriate. The Morgan Hill pilot project reveals what is true of all pilot projects – they effectively test and provide results for a certain alternative street design with minimal capital outlay. If Morgan Hill didn't conduct a pilot and commenced with the road diet, they would have been ultimately left with a product that was undesirable and lacking of local support. A pilot project's value is intrinsic of its ability to provide feedback, leading to designs that better serve the community.

III. Completing Potsdam's Streets: A Guide for the Future

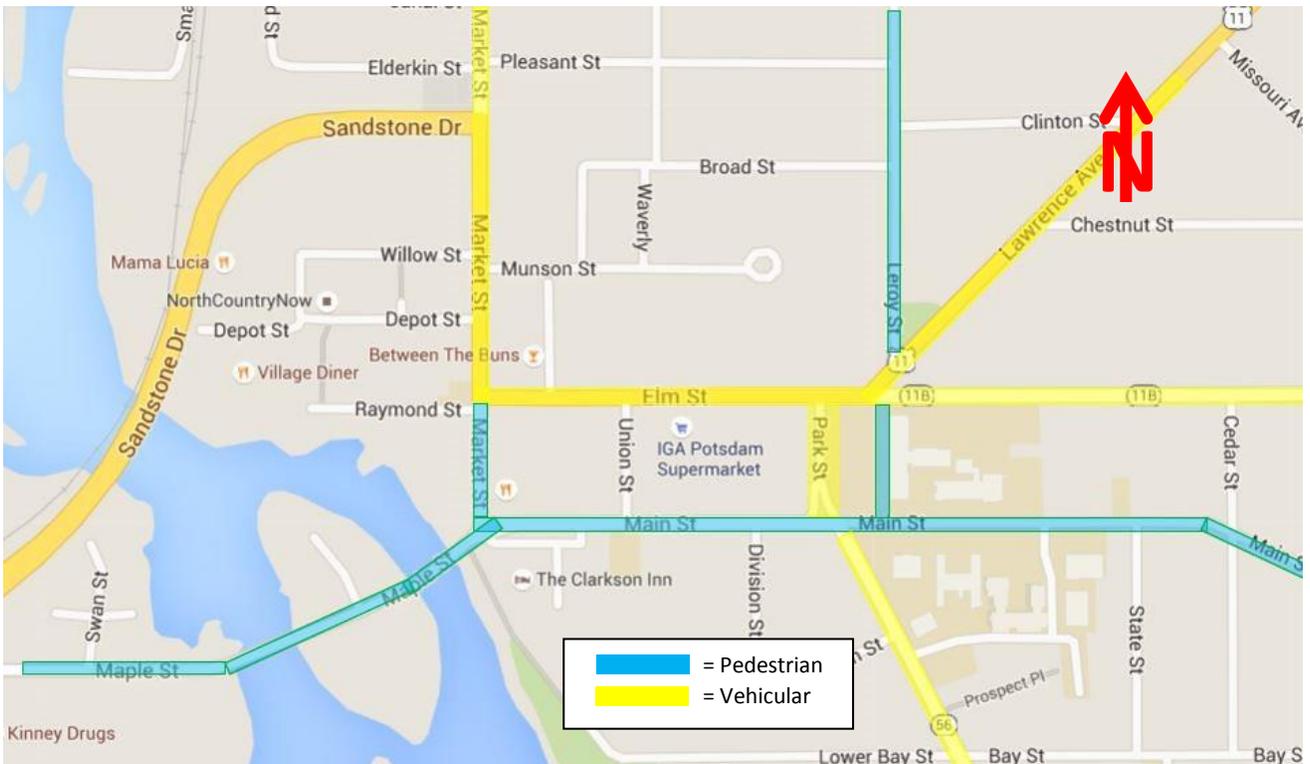
The revitalization of Potsdam's village core is reliant upon completing Potsdam's streets, or in other words, fostering a pedestrian culture. The cultivation of pedestrian traffic flow begins with knocking down the archaic yet present vehicle-centric attitude on roadways, and taking a new look at Potsdam's streets with the intent of increasing all forms and modes of traffic. In order to provide for all forms and modes of traffic in the village, it is essential to examine current traffic flows to determine optimal routes for vehicular and pedestrian traffic, followed by a systematic reclassification of our roadways. Potsdam currently only has one type of traffic corridor classification, that being of vehicular primacy. Potsdam's regeneration necessitates another class – pedestrian primacy. With two corridor classes of equal weight to consider, we face the next question: upon what premise should we reshape our roadways?

For Potsdam, there are two factors that must be addressed. First, there are three academic institutions that contain a high concentration of pedestrians. It is crucial that we link these three nodes with a safe and well-designed pedestrian corridor. Second, Potsdam receives a heavy volume of traffic (including truck traffic) due to its location on Route 11. This reality necessitates well-designed vehicular corridors the focus on efficiently and safely shuttling traffic through town, although not necessarily faster, since pedestrian safety correlates with slower traffic speeds. Although seemingly contradictory, creating a two corridor system in Potsdam that benefits pedestrians and motorists can be easily achieved, and it begins with a look at current traffic patterns, as depicted in the DOT traffic count map shown below. This traffic data was used to design a pedestrian primacy corridor and a vehicular primacy corridor in the village, also shown below, each focusing on dramatically improving the safety, efficiency, and connectivity of the targeted traffic type. The vehicular primacy corridor focuses on moving traffic efficiently through the village, increasing access to local businesses, and preserving public parking spaces. The pedestrian primacy corridor was designed to link Potsdam's three academic institutions with the village's economic core, improving accessibility and safety for pedestrian traffic. With this generalized traffic model in place, it is critical that each roadway within the model is systematically redesigned based upon the needs of the targeted traffic subtype and the context of that particular street.

²⁷ Complete Streets 6 Month Pilot Project | City of Morgan Hill, CA - Official Website. (n.d.). Retrieved April 26, 2016, from <http://www.morgan-hill.ca.gov/1395/Complete-Streets-6-Month-Pilot-Project>

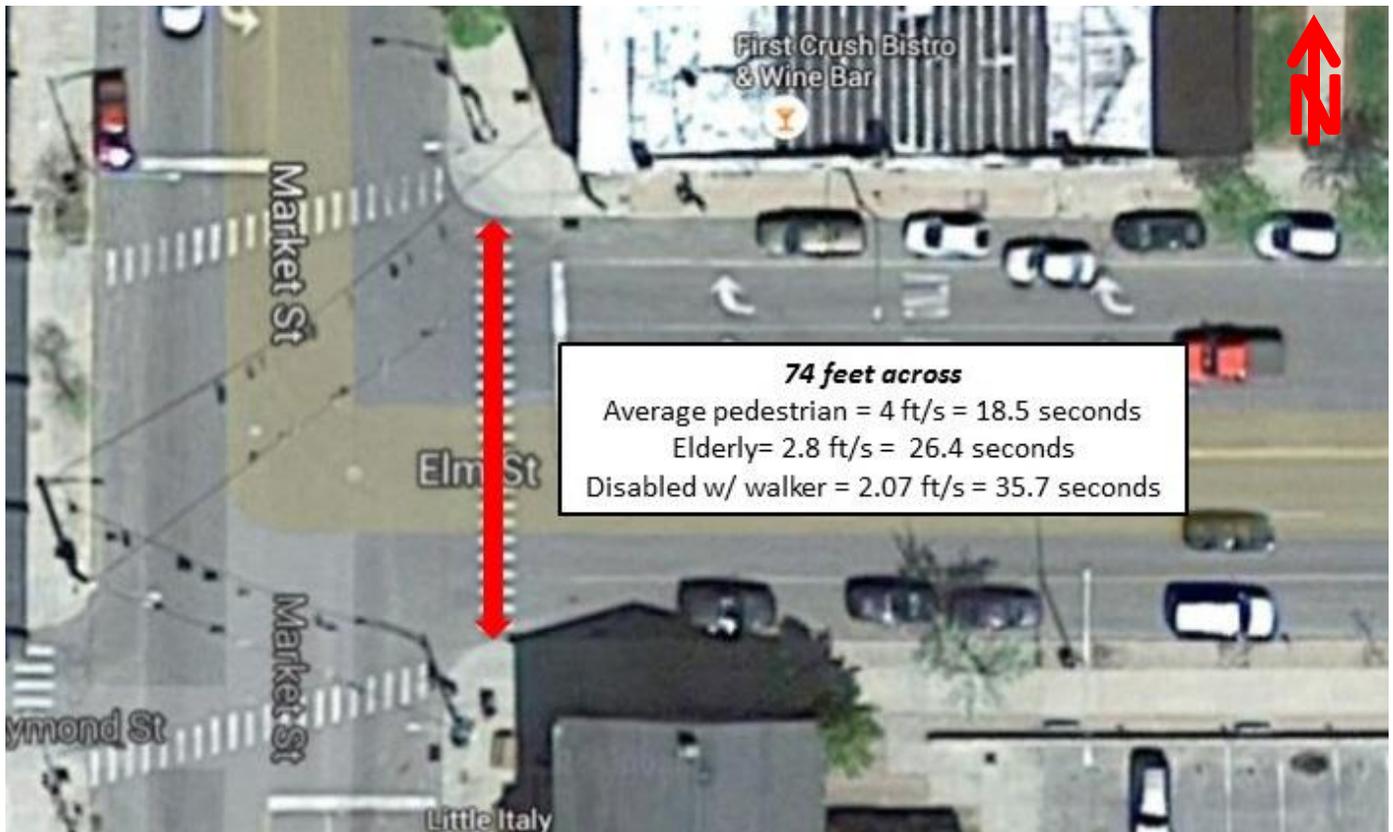


Source: <http://gis3.dot.ny.gov/html5viewer/?viewer=tdv>



Proposed Route Primacy Diagram for the Village of Potsdam

Intersection of Elm and Market Street



The intersection of Elm and Market Street is perhaps one of the most notorious features of Potsdam's current vehicle-centric culture, as this crosswalk is both long and harrowing. This intersection, arguably, has the highest rate of pedestrian – vehicle interactions, as this busy Route 11 corridor bisects the downtown business district. A surprisingly large volume of semi-trucks navigates this intersection every day, yet aside from the barest of provisions, little exists to provide pedestrians any sense of safety as they cross this intersection. As illustrated, an average pedestrian should be able to walk across before the traffic signal changes, but pedestrians with a slower walking pace, such as the elderly and the disabled, may not make it across in time.²⁸ And in inclement winter weather, the average crossing time for all pedestrians will increase, yet the signal time will remain the same.

Ameliorations to the intersection of Elm and Market are illustrated below. The key feature of this intersection involves the installation of a refuge to break up the daunting length of the original crosswalk. Bulb-outs were considered but ultimately rejected for this crosswalk as turning trucks tend to cut into the curb, posing a hazard to pedestrians. The turning radius of these trucks needs to be considered, and a refuge would be least impacted by this threat. Although bulb-outs are not appropriate for the crosswalk on Elm, the two crosswalks on Market are very suitable locations, and it is strongly recommended that curb setbacks are also used to increase the sight distance of pedestrians waiting to cross.

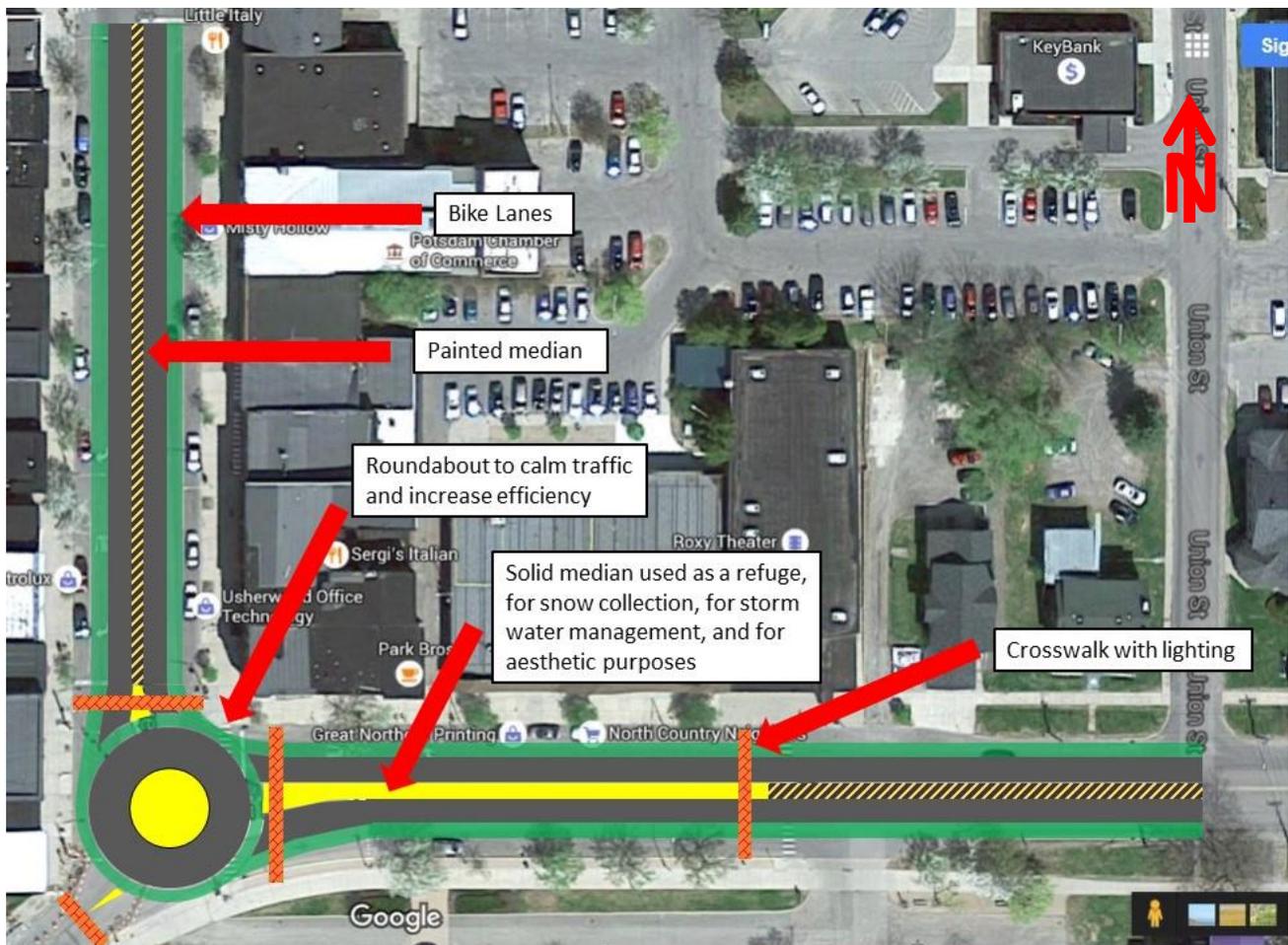
²⁸ Source for pedestrian crossing time figures: *Manual on uniform traffic control devices: For streets and highways*. (2009). Washington, D.C.: U.S. Dept. of Transportation, Federal Highway Administration.



Market Street, Main, and Maple



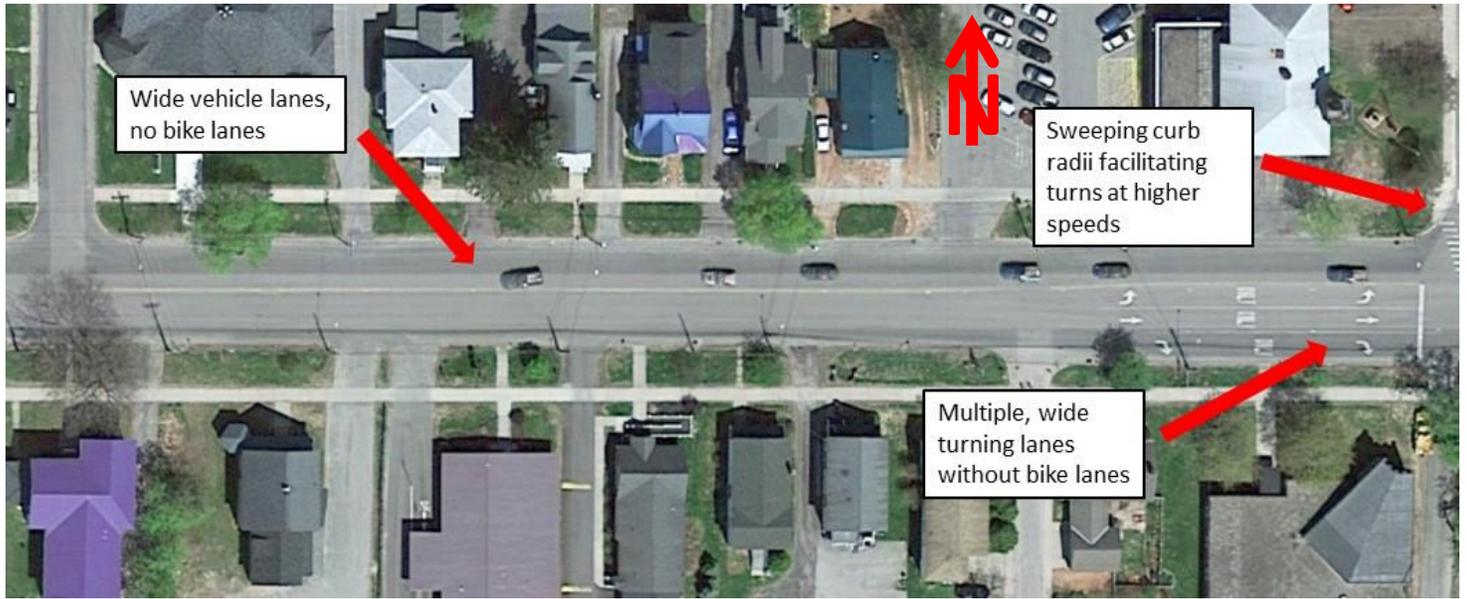
As the image above illustrates, the confluence of Market, Maple, and Main is exceedingly unsafe for pedestrian traffic, an irony of sorts since Market and Maple are the commercial mainstays of the village, inherently dependent upon pedestrian traffic. These roadways exhibit the antiquated tenets of “design speed,” that is, they were constructed using basic metrics favoring high traffic volumes with little concern for the contextual realities of that location. These segments of Market and Main are the lynchpins of the pedestrian corridor system, and as such, need to be redesigned with a focus on increasing the safety of accessibility for this mode of traffic. The following image illustrates how this should be accomplished, primarily by using road dieting techniques (by reducing traffic to two lanes), by installing bike lanes, and by installing traffic calming measures such as a traffic circle (aka roundabout) and a median²⁹. Although traffic circles were not included in the discussion about Complete Streets elements beneficial to Potsdam, traffic circles are a tried-and-true method of calming vehicular speeds while also improving traffic flow³⁰. The extended median featured in this proposal is a lucrative opportunity for the Village to improve its aesthetic appearance on its supposedly “main” street. Main Street Potsdam, in its present form, is nothing to write home about, but an extended median with carefully cultivated plants, shrubs, and trees can dramatically improve its aesthetic appeal, giving it more of a charming “Main Street America” atmosphere that would attract pedestrians and businesses and increase property values. This is an opportunity to give residents of Potsdam something they can be proud of.



²⁹ Note that these are supported by the October 2011 Streetscape study executed by The Chazin Companies

³⁰ Intersection Safety - Safety | Federal Highway Administration. (n.d.). Retrieved April 26, 2016, from <http://safety.fhwa.dot.gov/intersection/innovative/roundabouts/>

Main Street, Between Union and Park



This particular stretch of Main street is quite wide, facilitating higher traffic speeds, with little to no pedestrian features, especially for cyclists. The following image depicts a more completed version of Main, including bike lanes and one less turning lane to compensate for bicycle traffic. This design poses some issues, albeit, addressed by the Village of Potsdam’s Planning Board concerning the paid parking on either side of the road, which was not considered at the time of the original analysis. This on-street parking is currently not striped, and is infrequently used. However, on the occasion that it is needed (typically during church services), every parking space is filled. A potential redesign of this stretch could acknowledge this by eliminating the painted median in order to allow for a public parking lane on the south side of Main. The presence of bike lanes categorically outweighs the need for a handful of parking spaces on the north side of Main. It is also important to note that if more safe and efficient pedestrian infrastructure is provided, there is a strong possibility that increased pedestrian traffic would offset the loss of these few parking spaces.



Bike Paths on Main Street East of Park Street

The following two images depict how bike paths should be routed along Main Street east of Park Street. In an effort to preserve existing parking and reduce interactions with vehicular traffic, the bike path has been routed onto Clarkson owned property south of Main Street, and is designed for both eastbound and westbound traffic. The spur on the north side of Main joins a connector system, as illustrated in the third image, that links the Main Street pedestrian corridor with Leroy Street, effectively connecting all three academic institutions with the village core. Main street has been chosen as the pedestrian corridor instead of Pierrepont Ave. due to the higher traffic volume on this roadway, thus posing safety concerns for cyclists. Instead of installing paths on a road known to have high traffic loads, it is more reasonable, from a pedestrian safety standpoint, to route bicycle paths down Main Street, which has significantly less traffic, and offers many different connection options to campus.



The second image reveals the design for bike paths along the outer stretches of Main, exhibiting a dual-directional path on Clarkson property, transitioning into single direction bike lanes on either side of Main. The yellow crescents depict bulb-outs with curb extensions to increase visibility of cyclists attempting to cross.



This third image, as described earlier, is the Leroy Street Bike Path Connector, effectively linking Main Street with Leroy Street, thus providing unity and cohesiveness in the pedestrian corridor. This path travels over Clarkson owned property, through church property, and across a municipal park, all of which present modest challenges to development compared to the difficulty of developing on private land. The crosswalk over Lawrence Ave. poses the greatest challenge to pedestrian safety, as no traffic calming features exist to either slow vehicular traffic, or warn them of crossing pedestrian traffic. The Potsdam village planning board voiced their concerns about this crosswalk, discussed the difficulties of managing traffic in that particular area due to the complexity of the intersection and volume of traffic, and suggested that direct coordination with the NYSDOT might be the best strategy to gathering ideas about that particular crosswalk.



IV. Future Studies

I would highly encourage the continuation of this study due to its immediate value for the Village of Potsdam. The village desperately needs a comprehensive Complete Streets plan, and it is essential that a plan is established and vetted as soon as possible, preventing any lost opportunities. The following studies would be invaluable additions to the work already completed:

Redesign individual streets with precise metrics – One obvious weakness of this study is the methodology of the design process. Proposed complete street renditions were constructed in Microsoft PowerPoint, which presents very little opportunity to make precise designs. The images above are suggestions built with reasonable design metrics, but lack the precision and detail. To make this study more robust, these proposals need to be built with specific dimensions (as precise numbers tend to have more credence) in order to correct errors and seek new alternatives that were hidden in the generalizations in these proposals.

Write a more complete, Complete Streets policy

The Village of Potsdam's current policy is quite meager and does not offer a lot of specific guidance. Revitalization of the village's business core requires a targeted and detailed approach, outlining objectives for individual roadways, if not segments of individual roadways. A new Complete Streets policy needs to address the need for both vehicular and pedestrian corridors, and how the village's roadways should be redesigned to facilitate the increase of multi-use, multi-modal traffic. Such a policy should include plans that illustrate desired treatment and facilities desired for each village roadway segment in which the Complete Streets policy is anticipated to require specific efforts on the part of multiple jurisdictions/agencies. A robust policy will serve the Village well when it comes time for the NYSDOT to pursue construction projects within the village.

V. Summary

The future of Potsdam's village core is entirely contingent upon improving access to all forms of traffic. Vehicular traffic currently enjoys primacy on village roads, resulting in a scant to almost non-existent pedestrian culture. The present design of Potsdam's roads negatively reinforces pedestrian use, as safety concerns and poor infrastructure cause concerns for personal safety and inefficiency, ultimately stymieing traffic into the front doors of local businesses.

To provide for all forms and modes of traffic, the village roadways must be reclassified as either vehicular or pedestrian targeted corridors, and specific Complete Streets elements must be implemented in order to reinforce these desired results. The purpose of using Complete Streets elements is not to punish vehicular traffic, but to provide more effectively for all forms of travel. Some roads may be narrowed to improve pedestrian use, while others may be altered to increase the efficiency of vehicular traffic. For this to succeed, Potsdam must evaluate every meter of every road, and redesign based upon data and context.

There is the option to do nothing, to live by the status quo and hope for the best. But one does not need to look too far to see how well the status quo has been treating Potsdam's business district, and it can be safely asserted that defense of the status quo is defense of loss and decay. Completing Potsdam's streets is not merely a beautification project – it's a path to prosperity.

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