Downtown Scranton Connectivity Plan

June, 2023

Cover photo Creative Commons from Christopher Seliga

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Overview

The Purpose of This Document

This is a downtown connectivity plan, not a downtown master plan. It is not comprehensive and does not try to be visionary. But, like a master plan, it hopes to have a profoundly positive impact on the physical form, economic success, and social vitality of the city. Specifically, this report, and the effort that led to it, it asked this question:

What changes can be made, in the least time and for the least cost, that will have the largest measurable impact on the amount of people walking, biking, and taking transit downtown?

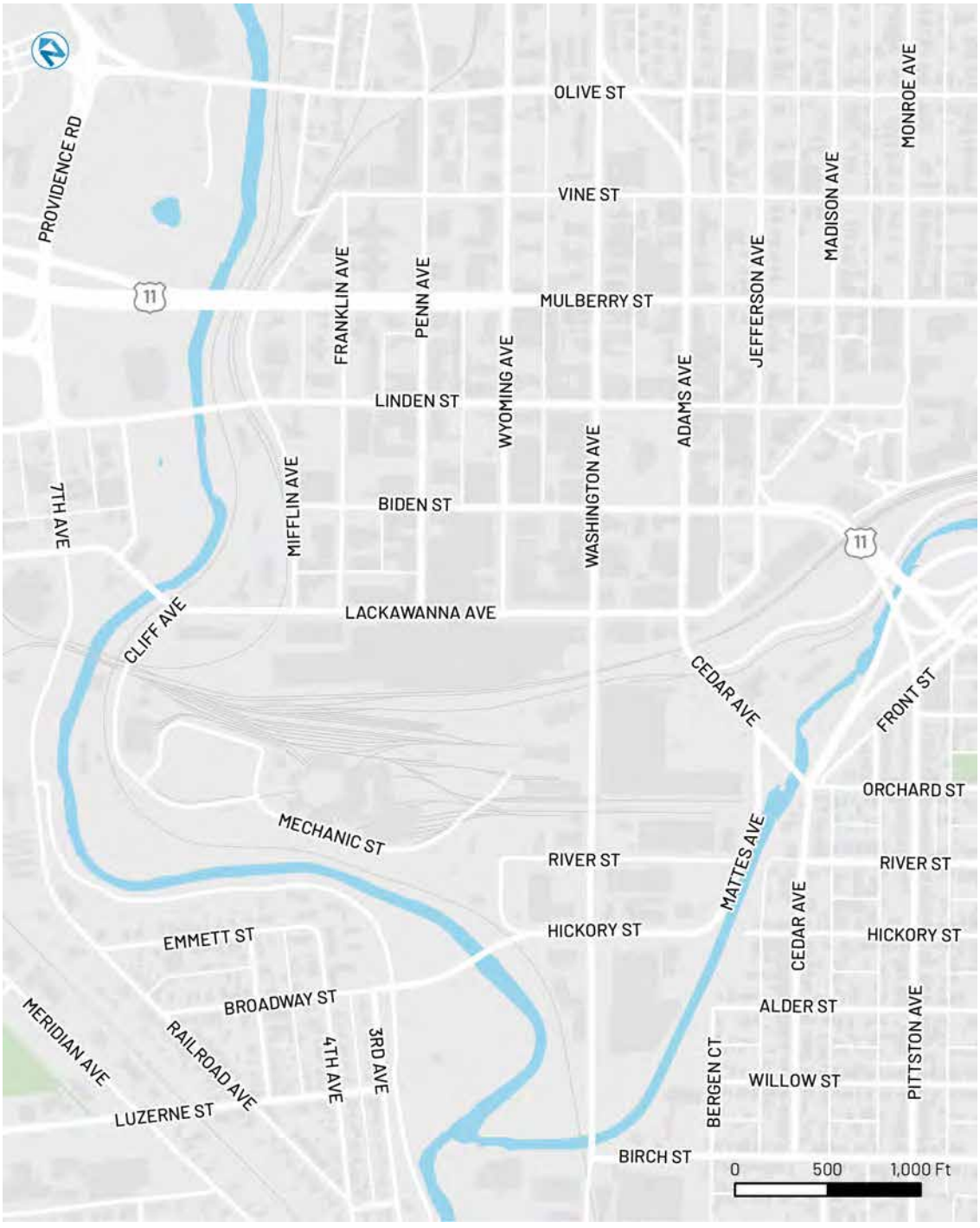
Downtown Scranton is the geographical, social, and economic center of a county of more than 200,000 people. Historically a vibrant hub of commercial and political life, it has seen its fortunes shift as a great suburban migration decanted many of its resources to surrounding areas. Now, after several decades of enlightened but limited reinvestment, there is a sense of an upswing. But a sleepy feeling still pervades, and the city's significant collection of pre-war commercial architecture can't help but remind the visitor of a time when the downtown was bustling with the life of earlier booms.

Happily, there is every reason to believe that downtown Scranton is poised for a comeback. National trends, to which Scranton is certainly not immune, show a continuing shift of populations back to city centers. Recovering from the anti-urban impacts of the COVID-19 pandemic, demand for downtown living is strong. Scranton is well positioned to take advantage of that demand, but only if downtown can provide a truly urban lifestyle that distinguishes it from its surrounding suburbs. And central to that lifestyle—its very essence—is walkability. Walkability is the backbone of downtown connectivity because walking, biking, and transit are all mutually supportive, while the dominance of the automobile makes all other modes of connection unpleasant and unsafe.

Polling among both millennials and empty nesters indicates a strong preference for mixed-use neighborhoods in which automobile use is an option rather than a universal mandate. Based on these indicators, the question is not whether people and businesses will be moving downtown, but whether they will be moving to downtown Scranton. The answer to that question will depend in part on whether Scranton provides a downtown environment that welcomes and supports walking.

It can be said with some objectivity that there is still much work to be done in this regard. Most streets in downtown Scranton are engineered to invite driving speeds considerably higher than those posted. One-way roads with the characteristics of freeways rush commuters in and out of downtown. Bicycle facilities are almost nonexistent. Unlike many cities with far less to offer, downtown Scranton suffers from traffic patterns and behaviors that almost certainly impede its development of a robust street life. The city that taught Jane Jacobs about cities deserves better.

Acknowledging its circumstances, Scranton's political and business leaders have asked the question of how their downtown can become more walkable and livable, and—by extension—more safe, healthy, and sustainable. This report attempts to answer that question in a manner that both directs and motivates real change in the short term. Few people will dispute whether its recommendations will lead quickly to more walking, biking, and vitality downtown. Few people will dispute that a livelier downtown will help to create a more successful Scranton. But many will ask whether this study's proposals are a high priority. It is hoped that the evidence gathered here will make the urgency of this report's proposals clear and overcome the attachment to business as usual that is generally the greatest impediment to the revitalization of American downtowns.



The study area, appropriately, is downtown Scranton.

Approach

By applying a design strategy centered on walkability, this Plan asserts and attempts to demonstrate how a series of careful planning interventions can exert a profound influence on the livability and vitality of downtown Scranton.

This report's recommendations are organized into five parts, as follows:

Part I, The Safe Walk, goes step by step through best practices in pedestrian safety. Because feelings of pedestrian safety are particularly challenged in Scranton, that category is broken down into nine separate sections, addressing everything from one-way vs. two-way travel to the details of street design. It elaborates on how these nine categories of best practices apply specifically in downtown Scranton, and what changes to street design they mandate.

Part II, Street Reconfigurations, shows the recommended changes to every downtown street that result from the application of the best practices discussed in Part I. Because these configurations are designed to fit between existing curbs, few of them require any reconstruction beyond the application of a new topcoat and striping, keeping costs to a minimum.

Part III, A Useful Walk, gets into detail on the principal factors that determine the usefulness of walking in downtown Scranton. These include housing supply, the pricing and management of parking, and opportunities for planning improvements in downtown transit service. Specific recommendations are made for optimizing each of these important factors.

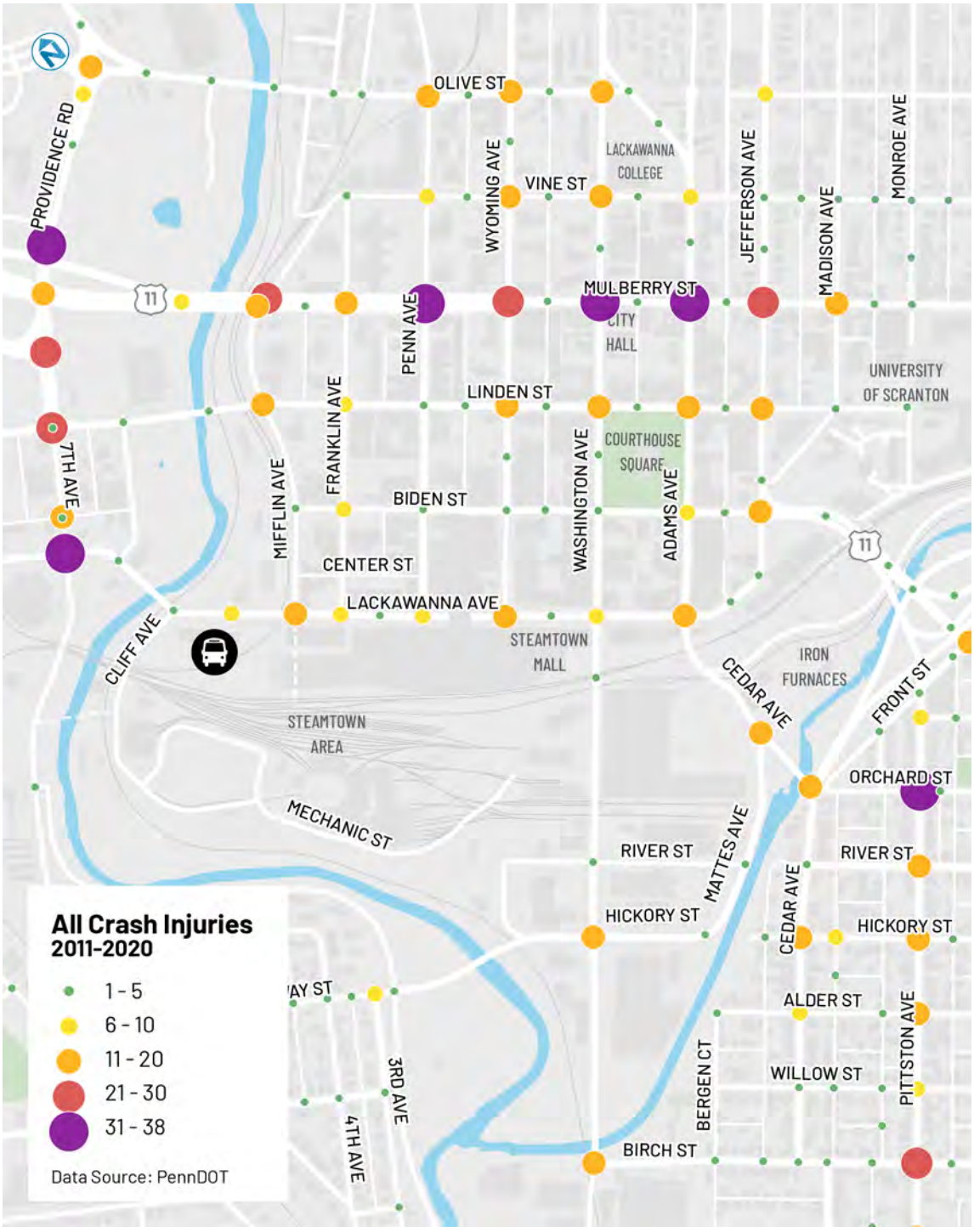
Part IV, A Comfortable and Interesting Walk, introduces the concept of the Street Frontage Quality Assessment which, along with an Anchors Analysis, determines the "Network of Walkability": where people can be expected to walk downtown. This network allows us to prioritize the improvements recommended in this Plan, because there is little benefit in improving the pedestrian experience along a street that pedestrians rarely use.

Finally, Part V, Next Steps, revisits the proposed street reconfigurations in light of the Network of Walkability, and also highlights those aspects of this Plan's other recommendations that would seem to merit the greatest attention in the months ahead.

The report ends with appendices that discuss this Plan's response to previous bicycle plans (Appendix A: Previous Bike Planning), and describe the traffic analysis that was completed as a foundation for this effort (Appendix B: Traffic Modeling Memorandum). Because it is unsafe for streets to have more lanes than needed for traffic, and because one-way networks are less safe than two-way networks, this effort recommends a redesign of the downtown street network that eliminates some unnecessary driving lanes and reverts many one-way streets back to two-way flow. Such a recommendation can only be made responsibly if one has confidence that no intersections will become overburdened by traffic. For that reason, this Plan included a painstaking traffic modeling exercise, described here.

Part I: The Safe Walk

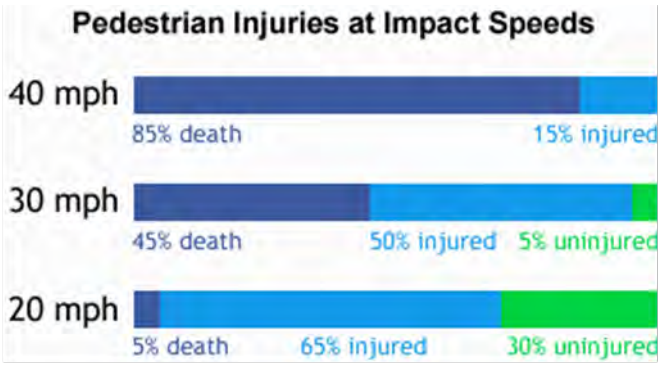
Most people who avoid walking do so because the walk feels dangerous due to the very real threat of vehicles moving at considerable speed near the sidewalk. Statistically, moving automobiles are a much greater threat to people walking than crime. This is certainly the case in downtown Scranton, where perceptions of potential crime are largely false while the threat of speeding traffic is real.



The study area experiences multiple injurious car crashes every year.

As the above map shows, downtown Scranton is no stranger to injurious car crashes. Not all of these involve pedestrians, but many do, and pedestrian death rates have skyrocketed nationwide even as driver deaths decline. Laura Gillette-Mills from the Chamber of Commerce told the study team that she had witnessed nine crashes with pedestrians, including one fatality, at the intersection of Lackawanna Avenue and Wyoming Avenue alone. According to a joint comprehensive plan published by Lackawanna and Luzerne Counties in 2021, the region had 201 pedestrian crashes in 2018, the highest in the last 10 years. The region also averaged about 46 bicycle crashes per year for the decade ending in 2018[1].

Downtown vitality—street life—is dramatically impacted by the speed of vehicles. But pedestrian safety needs to be its own focus. A person hit by a car traveling at 35 mph is roughly eight times as likely to die than if the car is traveling at 25 mph. Any community that is interested in street life—or human lives—must carefully consider the speed at which it allows cars to drive in places where people are walking.



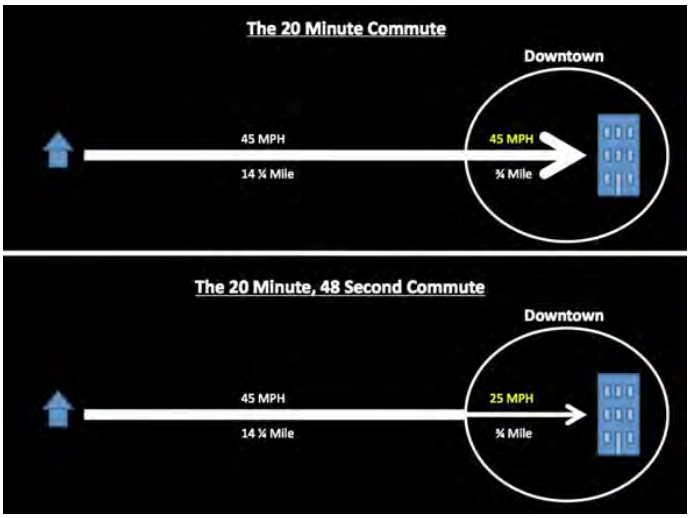
Keeping drivers at or below 25 mph is essential to pedestrian safety in downtown Scranton.

In most American cities, the place where people are most likely to walk is the downtown. Acknowledging that downtown is the city's primary walking location opens up real possibilities, as it allows us to have a dramatic impact on walking while impacting driving only minimally. By focusing on vehicle speeds in downtown, we can make walking safer for the most pedestrians with the least amount of driver inconvenience.

The illustration on the next page tries to make this point clear. It shows how the difference between an attractive downtown and an unwelcoming downtown may be less than a minute of drive time. Would most people be willing to spare 48 seconds each day if it meant that their city was a place worth driving to? Probably.

[1] Lackawanna-Luzerne Counties. "Joint Comprehensive Plan & Long Range Transportation Plan." June 2021: 95, https://www.lackawannacounty.org/Document_center/Department/Planning/LL-Comp-Plan-2021-Digital.pdf

This logic explains why a growing number of cities have instituted "20 is Plenty" ordinances in their downtowns, and a few have even settled on 18 mph as the target speed. But lowering speed limits only addresses half of the problem. The more important step is to engineer the streets for the desired speed, which means eliminating wider lanes and other inducements to speeding.



A significant change in downtown speeds typically results in a minimal change to commute times.

If the key to making a street safe is to keep automobiles at reasonable speeds—and to protect pedestrians from them—we must address the principal factors that determine driver speed and pedestrian exposure. In Scranton, there are nine:

1. The number of driving lanes;
2. One-way vs. two-way travel;
3. The presence of unwarranted signals;
4. The provision and design of walk signals;
5. The provision and design of crosswalks;
6. Lane width;
7. On-street parking;
8. Cycle facilities; and
9. The presence of street trees.

The understanding of how each of these factors impacts both driver and pedestrian behavior has evolved tremendously over the past few decades. Much of what many traffic engineers were taught in school has been invalidated, and many of the lessons learned are counterintuitive.

In the chapters that follow, each of these nine criteria is discussed at length, so current best practices can direct the redesign of downtown Scranton's streets.

1. The Proper Number of Driving Lanes

The more lanes a street has, the faster traffic tends to go, and the farther pedestrians have to cross. Many of Scranton's downtown streets clearly have more lanes than they need to satisfy the demand upon them, as will be demonstrated ahead. Removing unnecessary driving lanes frees up valuable pavement for more valuable uses such as curb parking and bike lanes.

The Lane Audit

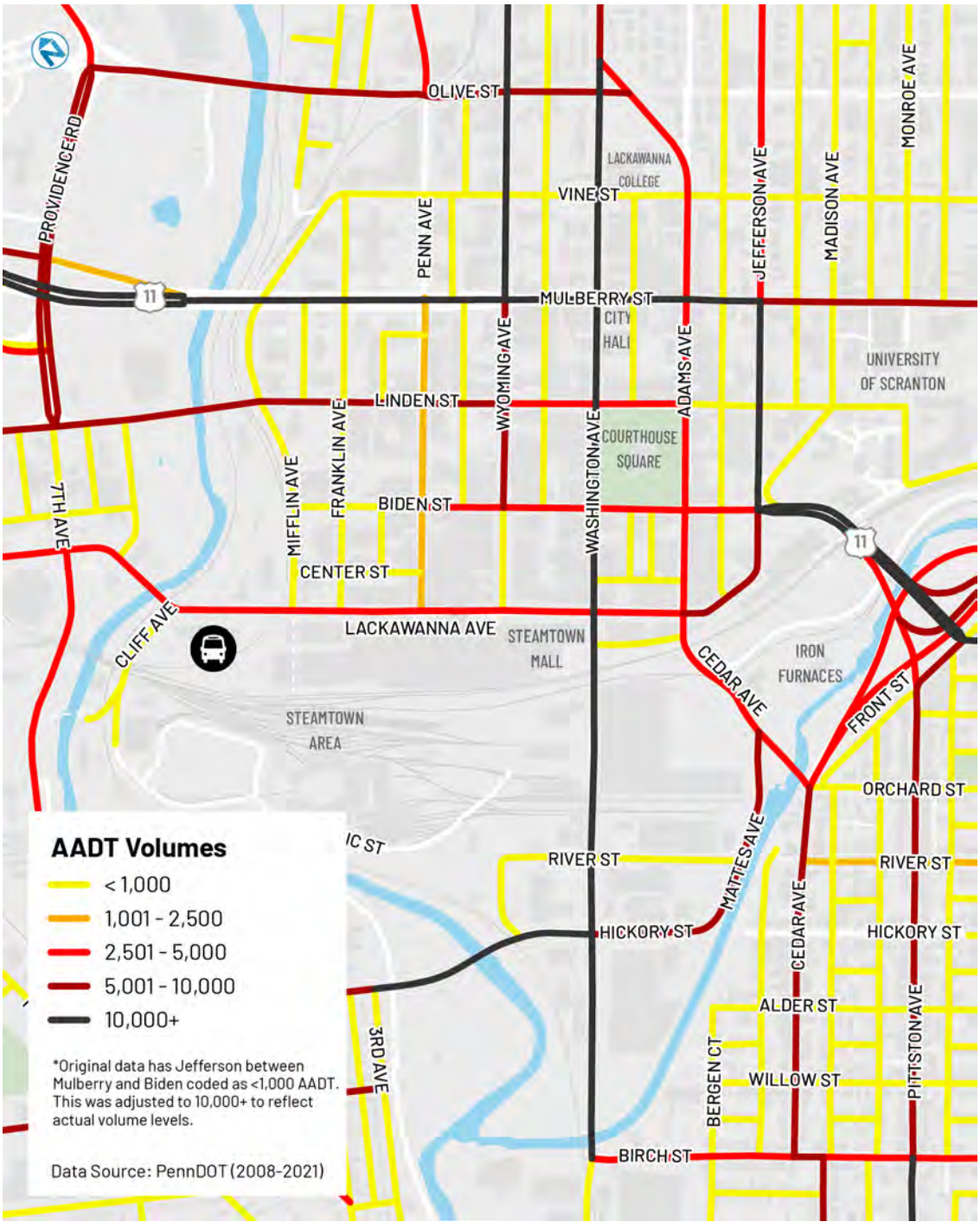
Determining which lanes are unnecessary, now and into the future, is a central challenge of this effort. Its first step is simply to compare the network's current capacity (supply of lanes) to its traffic (demand for lanes). The lane configuration diagram below shows how many lanes are present on each street in the downtown grid.

While every street and intersection are different, certain conservative rules of thumb can be trusted to determine how much traffic a street can handle. Most traffic engineers concur that a simple two-lane, two-way road can easily handle up to 10,000 car trips per day without congestion. Beyond that amount, adding center (left-hand) turn lanes at intersections increases the carrying capacity above 15,000 cars per day; the typical busy three-lane road handles 18,000 to 20,000 cars daily, which is similar to the capacity of a four-lane road without turn lanes. Beyond 20,000 daily trips, engineers generally recommend 5 lanes.

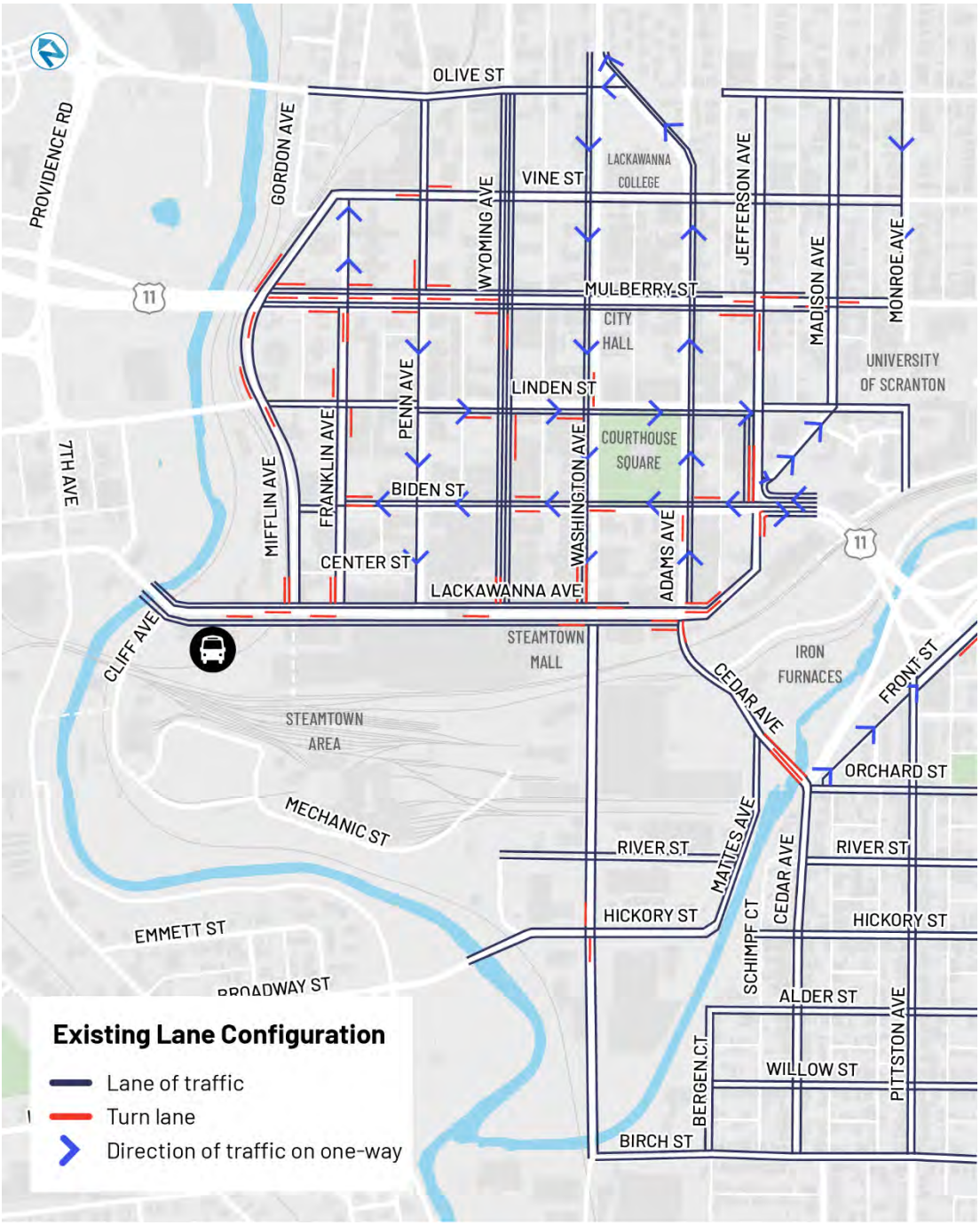
Relevant to Scranton, a single one-way lane is considered capable of handling well above 5,000 vehicles per day. This translates to roughly 500 vehicles at peak hour, or one car every 7 seconds.

Scranton does a good job keeping track of its traffic, and recent traffic counts have been recorded on every downtown street that handles more than a light trickle of vehicles. The latest pre-COVID counts are shown in the diagram below.

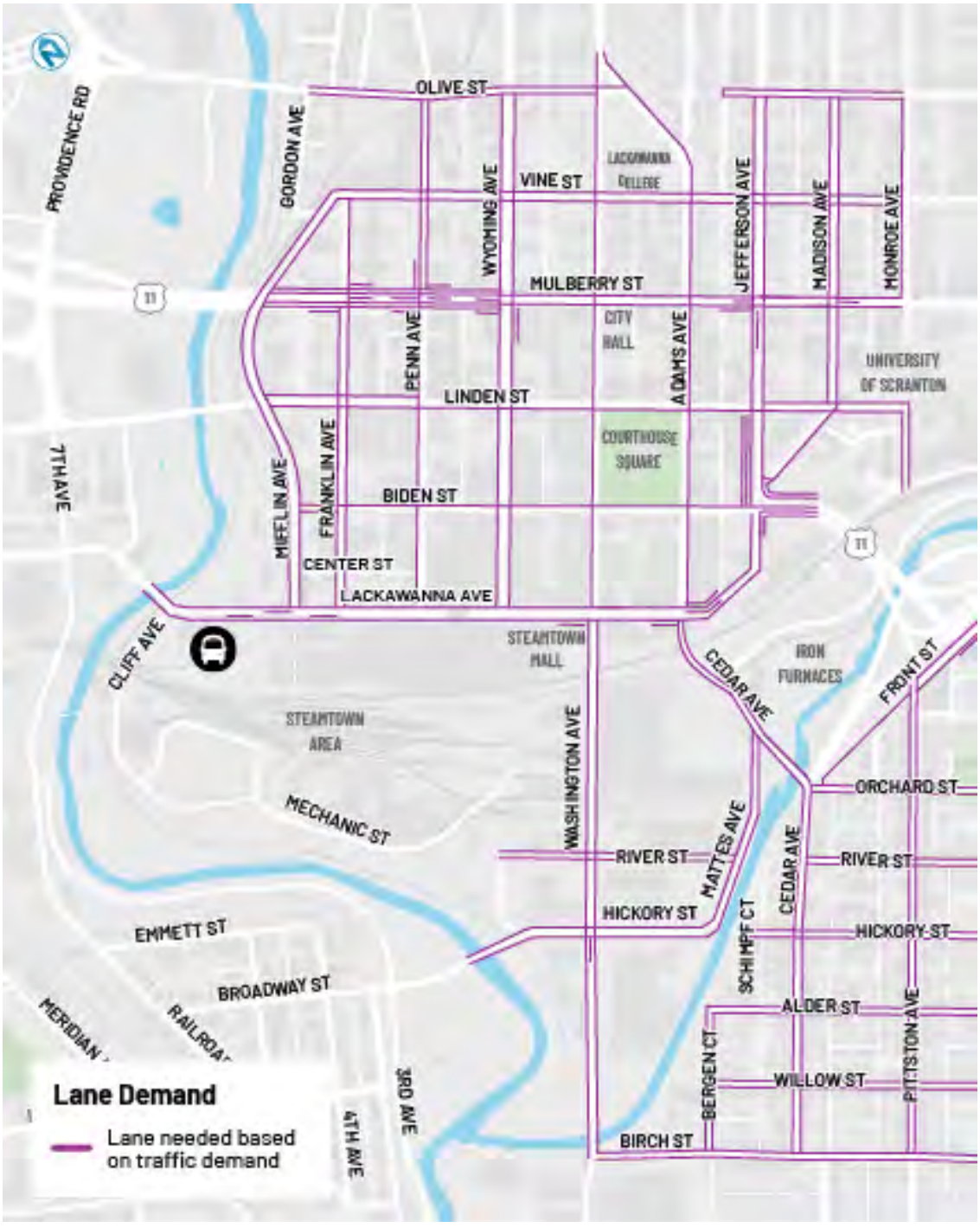
The traffic (AADT) diagram shows how, aside from Mulberry Street, Jefferson Avenue, Washington Avenue, and Wyoming Avenue, no street in the study area receives more than 10,000 car trips per day. Mulberry Street, the main highway through downtown, receives closer to 20,000 trips on its western segment, approaching a five-lane volume. Jefferson Avenue, connecting much of Mulberry's traffic south, handles considerable traffic turning left to exit downtown. Where Washington and Wyoming exceed 10,000 daily trips, it is only slightly, meaning that occasional left-turn lanes should solve any backups. These findings suggest that only Mulberry Street and Jefferson Avenue need contain more than two driving lanes for any significant distance through downtown.



Traffic volumes in downtown Scranton



The current supply of driving lanes in downtown Scranton



The current demand for driving lanes in downtown Scranton

The concept of a Lane Audit is quite simple: comparing the supply of lanes to the demand for lanes, this Plan identifies where unnecessary additional pavement exists that can be put to alternative use. That use could be parking lanes, bike lanes, or, on one-way streets, the

reintroduction of two-way travel. Most of the streets in downtown Scranton require only one driving lane for each direction of traffic. That circumstance is communicated in the Lane Demand diagram above.

The same strategy is applied to turn lanes. Again, when a street carries fewer than 10,000 cars per day, additional turn lanes at intersections are not needed, as they only serve to speed traffic to the detriment of safety. This technique was one of many that contributed to the success of the reconstruction of all streets in Oklahoma City's downtown core. While controversial at first, the elimination of all unnecessary turn lanes did not cause any significant congestion. For streets carrying fewer than 5,000 trips per day as in Scranton, the presence of turn lanes adds slight convenience but at considerable risk.

As the above diagrams show, there is a noticeable difference between the demand for lanes and the supply of lanes in downtown Scranton. It is important to consider that these lanes represent an inducement to speeding and potential resource they could provide for other uses.

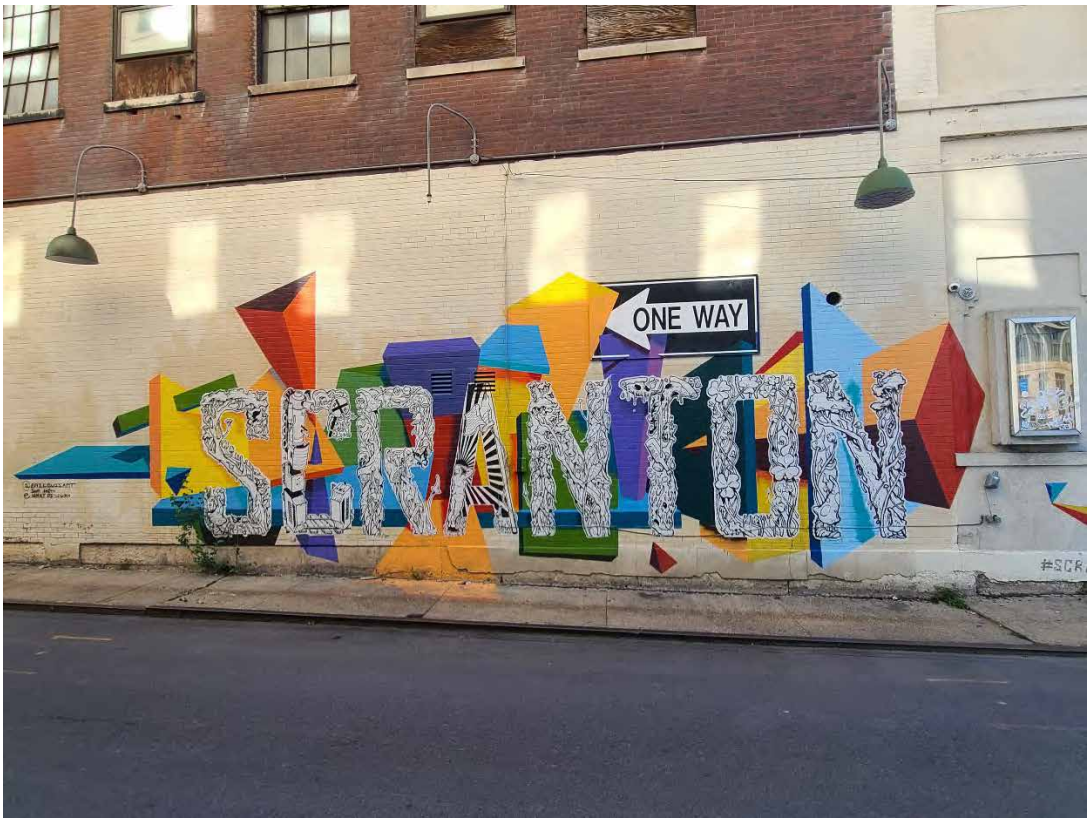
The full extent of that resource can be seen in the Lane Oversupply diagram on the next page. Some of this oversupply is easily corrected, while some is not, due to certain streets being owned by PennDOT rather than the City. This Plan recommends the removal of excess lane supply on all oversized streets. This can happen most quickly on the three that do not fall under PennDOT's purview:

- N Washington Avenue
- Biden Street, west of Wyoming Avenue
- Wyoming Avenue, south of Biden Street

This Plan recommends removal of most of the extra lanes diagrammed below, and their replacement with either parallel parking, cycle facilities, or—in the case of some one-ways—the introduction of two-way traffic. Proposed changes to each thoroughfare are enumerated in the street-by-street discussion ahead.

The current oversupply of driving lanes in downtown Scranton.

2. Avoiding One-Ways



Like many American cities, Scranton converted many of its downtown streets to one-way traffic in the mid-20th century. The transformation of two-ways to one-ways, by eliminating the delay caused by left turns across traffic, helped to speed the motion of cars *across* downtown. Unfortunately, it did so at the expense of pedestrian comfort, business vitality, and the efficiency of driving *around* downtown, turning many local trips into loops. In the 1960s, Scranton also reversed the direction of already one-way Biden Street (then Spruce Street) to receive traffic from the Central Scranton Expressway, additionally reversing the one-way portion of Linden Street, thereby killing counterclockwise circulation around Courthouse Square and worsening downtown navigation challenges.

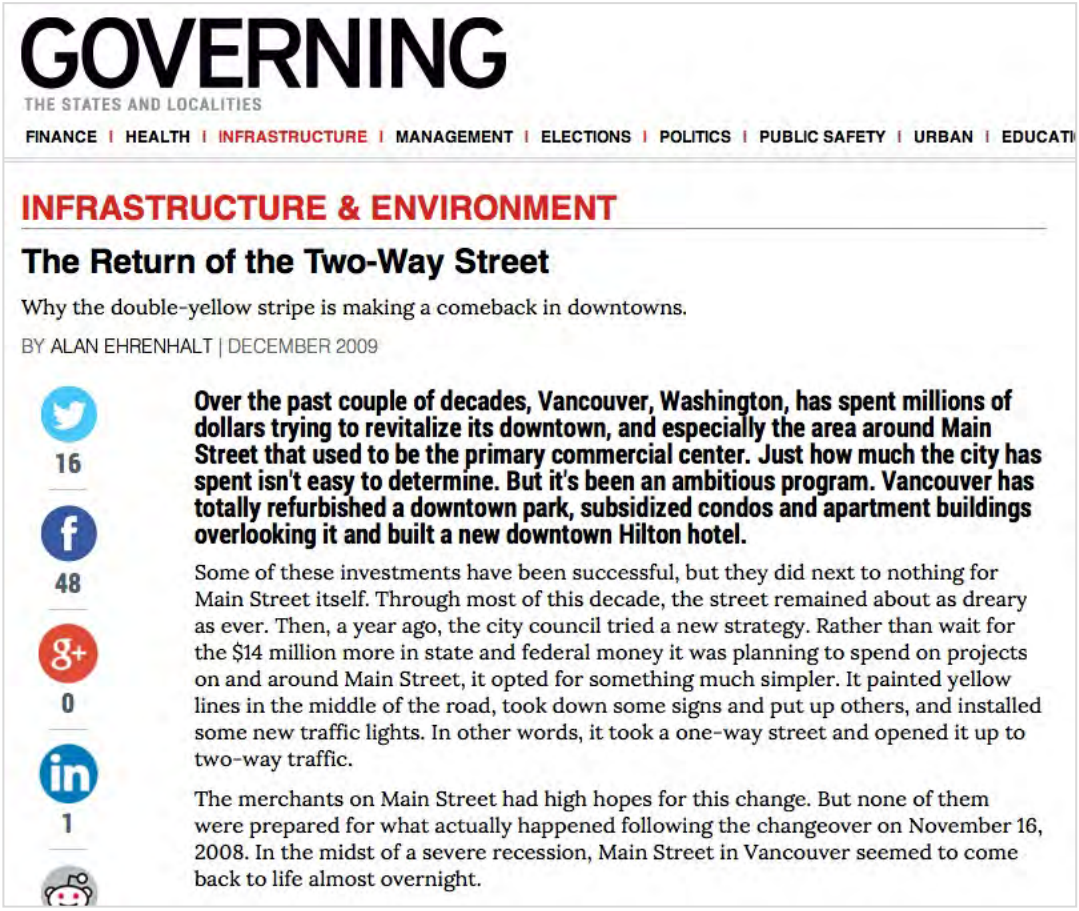
How One-Ways Work

People driving tend to speed on multiple-lane one-way streets, because there is less friction from opposing traffic and due to the temptation to jockey from lane to lane. In contrast, when two-way traffic makes passing impossible, the driver is less likely to slip into the "road racer" frame of mind. Additionally, people often don't look both ways before turning onto a

one-way street, since all traffic is coming from over only one shoulder. This means that people entering the crosswalk from the opposite direction are not seen until a conflict is imminent.

And then, of course, there is the danger of the "salmon swimming upstream." Almost everyone in Scranton has a story about having recently seen someone drive the wrong way on a one-way street, evidence that the system is not intuitive for all users.

One-ways also have a history of damaging downtown retail districts, principally because they distribute vitality unevenly, and often in unexpected ways. They have been known to harm stores consigned to the morning path to work, since people do most of their shopping on the evening path home. Moreover, stores on cross streets whose facades face the direction of flow are never seen by passing drivers. One-ways can also intimidate out-of-town patrons, who are afraid of becoming lost, and they frustrate locals, who are annoyed by all the circular motions and additional traffic lights they must pass through to reach their destinations.



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The Return of the Two-Way Street

Why the double-yellow stripe is making a comeback in downtowns.

BY ALAN EHRENHALT | DECEMBER 2009

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Over the past couple of decades, Vancouver, Washington, has spent millions of dollars trying to revitalize its downtown, and especially the area around Main Street that used to be the primary commercial center. Just how much the city has spent isn't easy to determine. But it's been an ambitious program. Vancouver has totally refurbished a downtown park, subsidized condos and apartment buildings overlooking it and built a new downtown Hilton hotel.

Some of these investments have been successful, but they did next to nothing for Main Street itself. Through most of this decade, the street remained about as dreary as ever. Then, a year ago, the city council tried a new strategy. Rather than wait for the $14 million more in state and federal money it was planning to spend on projects on and around Main Street, it opted for something much simpler. It painted yellow lines in the middle of the road, took down some signs and put up others, and installed some new traffic lights. In other words, it took a one-way street and opened it up to two-way traffic.

The merchants on Main Street had high hopes for this change. But none of them were prepared for what actually happened following the changeover on November 16, 2008. In the midst of a severe recession, Main Street in Vancouver seemed to come back to life almost overnight.

In 2009, Governing magazine documented some of the benefits of two-way reversion.

Learning from the damage wrought by the one-way conversion, more than 100 American cities have reverted these streets back to two-way. One such success story, Vancouver, Washington, was famously covered in *Governing* magazine in 2009. Merchants credit a two-way reversion of their one-way main street with the revitalization of a struggling downtown. A similar experience was documented in Savannah, Georgia, where a conversion to one-way traffic on East Broad Street in 1968 resulted in a loss of almost two-thirds of all businesses. When the street was reverted to two-way in 1990, the number of businesses quickly rose by 50 percent.

Turnaround stories like these have since catalyzed momentum for more towns to follow in this positive direction. Also convincing are the results concerning traffic: while almost every such proposed reversion has been opposed by some out of fear of congestion, none have seen those fears come to pass.

Recent Experience

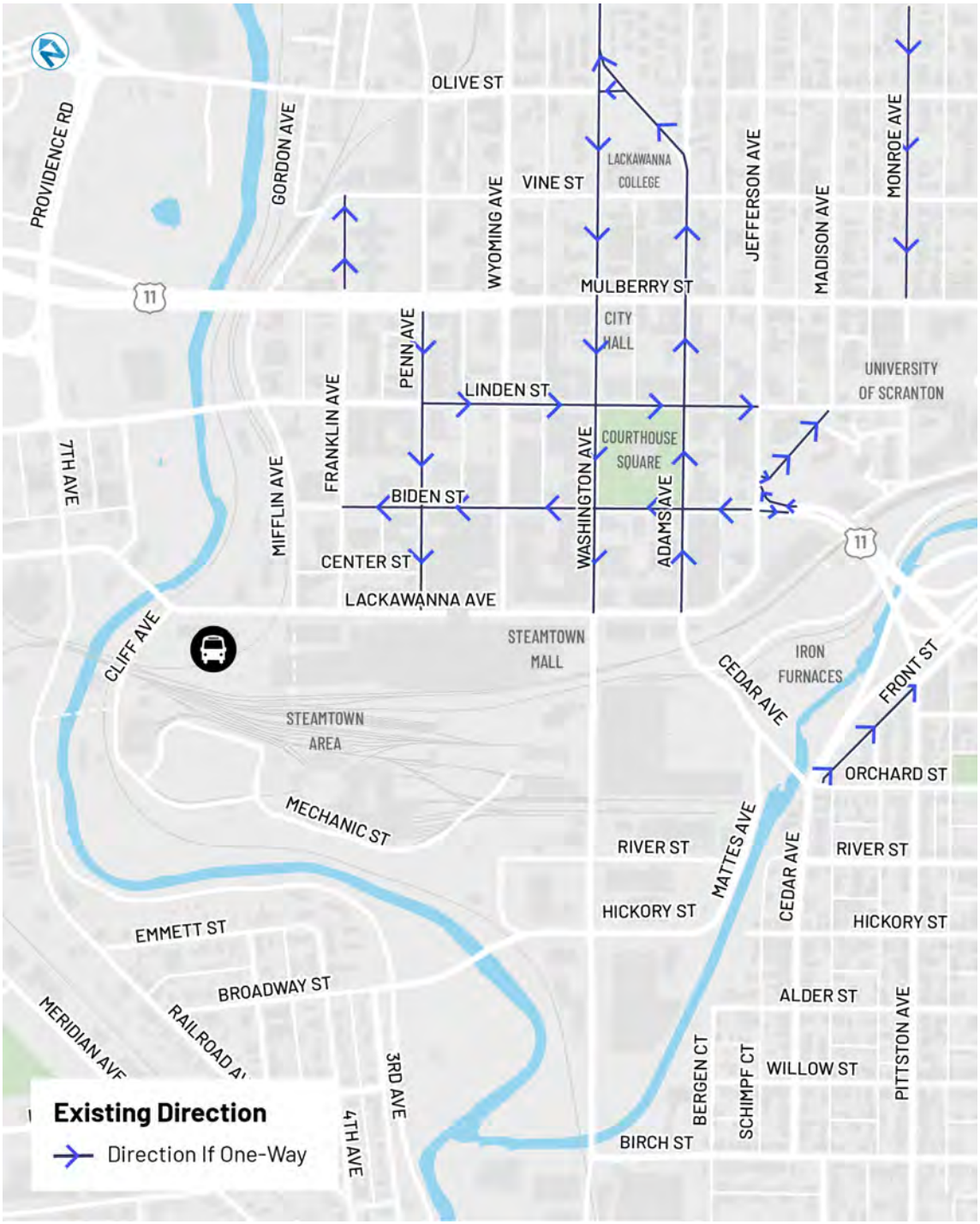
A more recently published report on this topic comes from Louisville, Kentucky, and is outlined in a report titled "One Way to Fix Louisville's Declining Neighborhoods," by Professor John Gilderbloom. This paper covers the experience of two Louisville streets, Brook and First, that were reverted to two-way traffic, and compares them to nearby streets (Second and Third) that remain one-way.

Here are some of the findings: along the reverted streets, there was a "significant reduction in crime, accidents, and an increase in property values, business profits, and bike and pedestrian traffic." Specifically, Brook Street saw a 36 percent reduction in car crashes and a 39 percent increase in property value. Car crashes on First Street dropped 60 percent. Meanwhile, on one-way Second and Third Streets, car crashes increased an average of 15 percent. And while crime increased 36 percent on Second and Third Streets, it dropped 23 percent on Brook and First. Revenues to businesses on the converted streets have also risen significantly, with one restaurant doubling its table space.

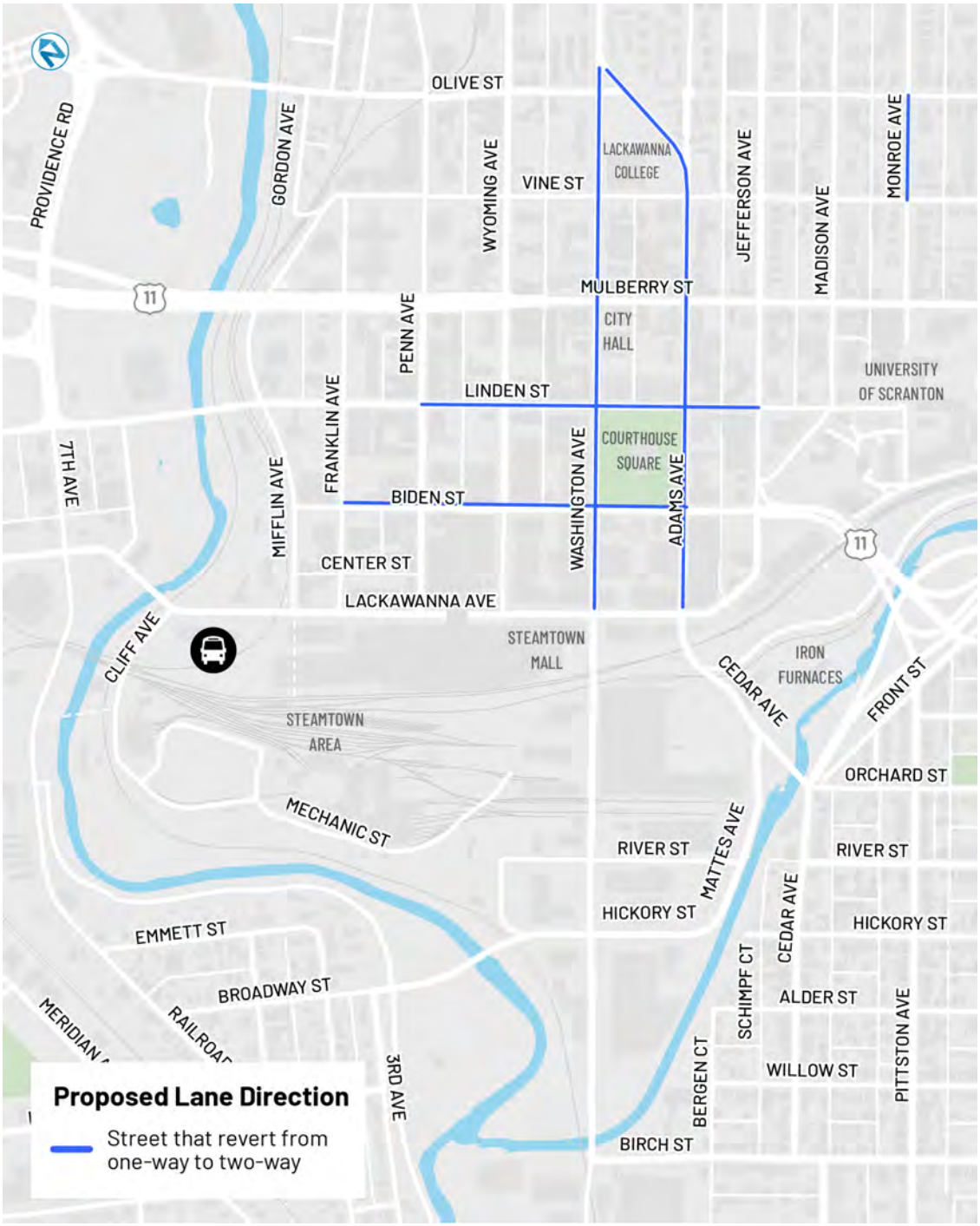
Louisville is but one example out of many. Those who doubt the increased safety, business, and circulation advantages of restoring two-way travel to downtown streets would be advised to investigate the experience of Albuquerque, Arlington (VA), Ann Arbor, Atlanta, Austin, Baltimore, Boise, Buffalo, Cedar Rapids, Charleston, Charlottesville, Chicago, Cincinnati, Colorado Springs, Columbus, Dallas, Davenport, IA, Dayton, Denver, Detroit, Durham, Edmonton (AB), El Paso, Evansville (IN), Fort Collins (CO), Fort Wayne (IN), Hamilton (ON), Holland (MI), Huntington (WV), Indianapolis, Iowa City, Jackson, Kalispell (MT), Kansas City (MO), Kichener (ON), Kokomo (IN), Lancaster (PA), Lawrence (MA), Louisville, Los Angeles, Lowell (MA), Lubbock (TX), Mankato (MN), Melbourne (FL), Mexico City, Michigan City (IN), Milwaukee, Minneapolis, Mt. Pleasant (SC), Nashville, New Albany (IN), Oklahoma

City, Omaha, Ottumwa (IA), Pittsburgh, Roanoke, Rochester (NY), Raleigh, Redmond (WA), Richmond, Sacramento, San Francisco, San Jose, San Marcos (TX), Savannah, Seattle, Somerville (MA), South Bend, Sturgeon Bay (WI), Tampa, Toledo, Tulsa, Tucson, Vancouver (WA), and West Lafayette (IN), and West Palm Beach (FL), and Winchester (VA).

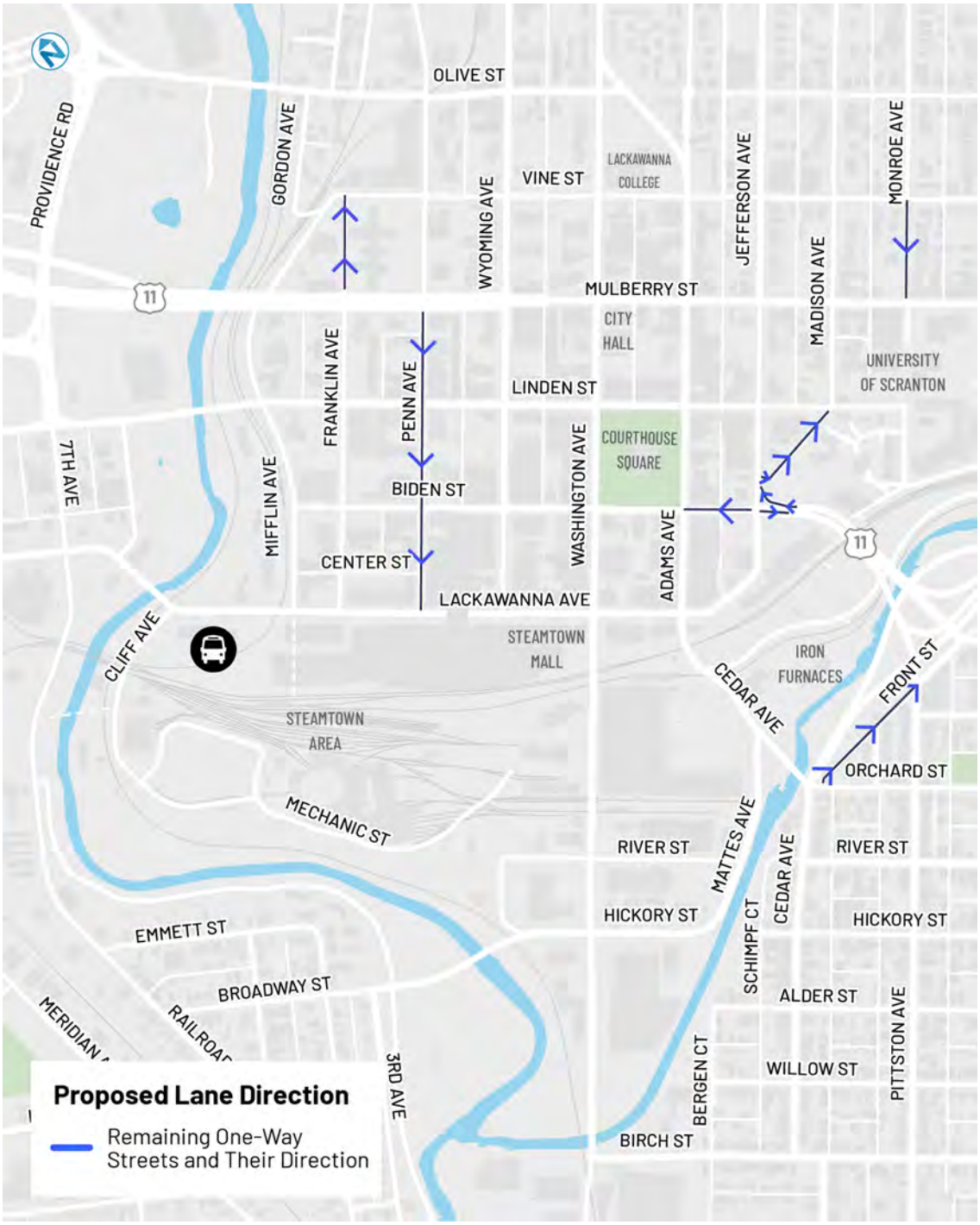
A More Rational and Legible Network



Street segments where one-way travel exists today



Streets segments proposed for restoration of two-way travel



Streets that would remain one-way based on the recommendations of this Plan

The strategy of this Plan is to revert all one-way streets to two-way travel wherever doing so will not have a significant impact on either parking provision or traffic flow. Within this framework, the wider multilane north-south streets of Washington and Adams Avenues are clear choices, as are Biden and Linden Streets heading east and west. These four streets currently create the one-way hashtag around the Courthouse Square that considerably undermines the safety and business viability of the very heart of Scranton.

This foursome of Washington, Adams, Biden, and Linden holds the greatest promise for a more walkable Scranton. Stretching four blocks east-west and five blocks north-south, this change will dramatically improve the circulation, safety, and livability of downtown as a whole but nowhere more prominently than around Courthouse Square. Years of accommodation to this awkwardly overengineered public space may have limited the ability to imagine how much better it could be. But let's try:

Drivers will be able to travel and turn in every direction. There will be no jockeying between lanes around double-parked vehicles. There will also be no waiting at stoplights, as all-way stop signs will grace each corner (discussed ahead). Traffic will be flow slowly and steadily. Pedestrians will never have to wait more than a few seconds to cross any street, and eye-contact between all road users will be the norm. Dedicated bike lanes will grace three sides of the square, and ample parking will remain, with special loading zones removing delivery trucks from the street. Regular crashes at each corner will become a memory.

These predictions can be made with absolute confidence, based on a preponderance of data collected in other cities. This is the future that Scranton can have if it wants. One can only ask—as often found on urbanist Twitter—WWJD? What would Jane do?

Where to Retain One-Way Streets

The two blocks of Monroe Avenue between Mulberry and Olive are ripe for reversion. This is a classic low-volume residential street in which two-way travel will calm traffic without causing congestion, improving safety and property values. However, the southern of these two blocks, between Mulberry and Vine, is a potentially important cycling corridor between campus and the route up Vine Street to Nay Aug Park. Preserving one-way travel here will allow for the insertion of bike lanes.

Penn Avenue south of Mulberry Street is another thoroughfare that would not benefit from a reversion to two-way traffic. It contains only one driving lane, so there is none of the jockeying that comes from excess asphalt, and its southeast flank of angled parking enhances its cachet as a shopping corridor. Introducing two-way traffic here would eliminate this valuable asset with little increase in safety.

Some small sacrifices must be noted. South of Linden Street, Adams Avenue is too narrow to maintain parking on both flanks if it is to include two-way travel and recommended bike facilities (detailed in the bike plan below).

Adams also narrows above Vine Street, so parking must be limited to one side there as well. There will be a few other locations where, once two-way travel is introduced, parking may need to be restricted to one flank only. This is a superior outcome to the alternative, in which a rational two-way network is interrupted here and there by one-way segments in order to preserve every current flank of parking, particularly since this Plan results in a significant increase in on-street parking overall.

The central four-street reversion proposed here acknowledges that a number of anomalous one-block locations must remain one-way. They include:

- **Biden Street between Jefferson and Adams Avenues:** Since the rebuild of the junction with the Biden Expressway at Jefferson will require longer study and coordination with PennDOT, this block must stay one-way (as the rest of the corridor is converted to two-way). This study should be initiated at the first opportunity, to transform this barrier into the gateway that it should be;
- **Madison Avenue's diagonal segment between Jefferson Avenue and Linden Street:** this low-volume street should be reviewed as part of the recommended study of the Biden Expressway at Jefferson; and
- **Franklin Avenue, between Vine and Mulberry:** This one block of Franklin provides important access to the adjacent Veterans Center. Given that it is outside the core area of walkability, maintaining one-way travel here is not problematic.

Pulling Off the Band-Aid

Now to address a second question: how can we motivate the City and its residents to embrace the entirety of this proposal and pursue it in short order?

The evidence, already presented, is clear: Two-way streets are safer, better for business, and a hallmark of America's best neighborhoods. But reverting the direction of streets can be confusing and relatively costly if it involves signalization changes. Consideration of these two concerns provides the clear direction to make these changes all at once rather than piecemeal over time.

Implementing changes on a street-by-street basis over a longer period would maximize confusion by providing months of small surprises that might not be newsworthy enough to garner public attention. Creating a single, well-publicized campaign that occurs as quickly as possible is the best way to engender more cautious driving and fewer baffled drivers.

But an even greater motivation for a comprehensive roll-out comes in the high cost of modifying traffic signals. When two intersecting streets change their direction of flow, the signals at their intersection must be modified each time one street is changed, so it is much cheaper to do both streets at once. This is particularly relevant here, as this plan recommends the replacement of many traffic signals with all-way stop signs, a change often made possible by the restoration of two-way flow: while two-lane one-ways generally require signals at major intersections, two-lane two-ways do not (as discussed ahead). At an intersection where two one-ways meet, like Linden and Adams, restoring two-way traffic to one street and not the other would require that *additional signal heads be added* before both are eventually removed at full reversion. Most cities hope to avoid wasting money this way.

Providing enough space for emergency service response is a key consideration when reverting streets to two-way, particularly as the City of Scranton has an ordinance allowing delivery trucks to double park, further restricting traffic flow. Happily, Scranton's downtown streets also contain consistent curb parking some of which could be transformed into loading zones. The introduction of loading zones (typically at corners) is an important part of most downtown two-way reversions.

According to a recent assessment of downtown loading zones, Washington and Adams Avenues are the only streets among those recommended for two-way reversion that experience significant loading activity; the eventual plan for their reversion should include these zones.

The City of New Albany, Indiana, provides an exemplary case of a comprehensive downtown reconfiguration completed all at once.

A yard sign in New Albany, Indiana

In 2014, New Albany commissioned a mobility plan that ultimately recommended reverting its entire downtown grid from one-way to two-way traffic. The City studied and debated these recommendations for several years, concerned about resulting congestion and impact on emergency services. The go-ahead was finally given in 2017, and the entire network was restored to two-way over a single summer. The simultaneous reversion kept costs low.

In one summer, New Albany, IN, reverted an almost entirely 1-way downtown to almost entirely two-way

Skeptics, including a local trucking company, were quickly silenced as a struggling downtown came back to life. Hundreds of new apartments have been built and new businesses opened. One citizen, Kate Rosenbarger, described it this way: "What is happening now feels like a fairytale land. It feels vibrant, hip, bustling, and safe. There are so many great shops and restaurants. People go out to dinner and then stroll around looking in windows."

Even more comforting was the assessment from emergency services. New Albany police chief, Todd Bailey told reporters that in his 28 years as a police officer, he has "never seen a better scenario for public safety. Speeds have been reduced, crashes are down, and response time to calls for service is far better than it has ever been."

3. Replacing Unwarranted Signals with All-Way Stops

For many years, cities inserted traffic signals at their intersections as a matter of pride, with the understanding that a larger number of signals meant that a place was more modern and cosmopolitan. Recently, that dynamic has begun to change, as concerns about road safety have caused many to acknowledge that signals are not the best solution for intersections experiencing moderate traffic. Research now confirms that all-way stop signs, which require motorists to approach each intersection as a negotiation, turn out to be much safer than signals. Unlike with signals, no law-abiding driver ever passes through an all-way-stop-signed intersection at more than a very low speed. Nobody tries to beat the light. There is considerable eye-contact among users. While people driving slow down, they never have to wait for more than a few seconds to get through, and people walking and biking are generally waved through first.

The Evidence

The major study on this subject is compelling. It is described in Persaud *et. al.:* "Crash Reductions related to Traffic Signal Removal in Philadelphia" (1997). This study recounts the 1978 removal of 462 traffic signals due to a 1977 state ruling stating that signals were not warranted on intersections with an annual average daily traffic of less than 9,000 on the major street or less than 2,500 on the minor street. 199 of these signals had adequate data to make it into the study, and 71 non-converted intersections were identified as a control group.

In almost all cases, the signals were replaced by all-way stop signs. The overall reduction in crashes was 24 percent. Severe injury crashes were reduced 62.5 percent overall. Severe pedestrian injury crashes were reduced by 68 percent. While some pedestrians and drivers prefer signalized intersections, this data is too conclusive to ignore. Until a contradicting study is completed, cities should be compelled to conduct an audit of current signalization regimes to determine which signals may be eliminated.

When converting signals to stop signs, cities are faced with the choice of two-way and all-way stops. Clearly, if one street contains tremendously more traffic than the other, a two-way stop makes more sense. However, there is no doubt that all-way stops should be used wherever they do not pose an undue burden, as they are considerably safer. In studying the conversion of two-way stops to 4-way, "the collective results of numerous published studies of such conversions established that crashes are reduced by approximately 40-60%, and injury crashes are reduced by 50-80%." (Hauer, 1985.)

One illustrative example comes from Albuquerque, where a similar study resulted in the replacement of nine downtown signals with all-way stop signs. According to local news reports, a negative public reaction caused the City to revert three of these intersections back to signals. This was followed by an even stronger negative public reaction and complaints about increased traffic. As the City's Department of Municipal Development noted, "a stop light has the tendency to build up quite a few cars, whereas a stop sign only builds them up one or two at a time."[2]

Residents also confirmed that the stop signs made them feel safer. One abutter commented that "it reduces accidents because people will slow down for a stop sign, while they'll run through a yellow to beat the red." Reversing the reversal, the City reinstalled the all-way stop signs, and removed the bagged lights a few months later.

As reported by KQRE in Albuquerque, stop signs have been found to improve both safety and traffic flow downtown.

Additional Outcomes

One great byproduct of converting signals to stops is money saved: stop signs are much cheaper to install, operate, and maintain than signals, with no bulbs to replace nor signal poles to upgrade. This fact is important to keep in mind as one considers the conversion of downtown streets from one-way to two-way. The principal cost of these reversions is signal reorientation. However, as noted, while signals are almost always required where multilane one-ways intersect, they are often not required where two-lane two-ways intersect. Moreover, when two-lane two-ways cross at a four-way stop sign, there is often no need or use for a left-turn lane pocket, and that pavement can be used instead for parking or cycling, or creating more visibility for pedestrians at a crosswalk.

A word is also needed about the driver experience that accompanies the replacement of signals with all-way stops. It is true that, compared to a network of signals, a network of stops signs result in a drive that is interrupted by more pauses. But these pauses are all quite brief. Never does the driver have to sit and wait for a light to turn from red to green. Such

[2]"City reinstalls downtown stop signs to reduce congestion, speeding." 14 August 2018. KRQE News. https://www.krqe.com/news/city-reinstalls-downtown-stop-signs-to-reduce-congestion-speeding/

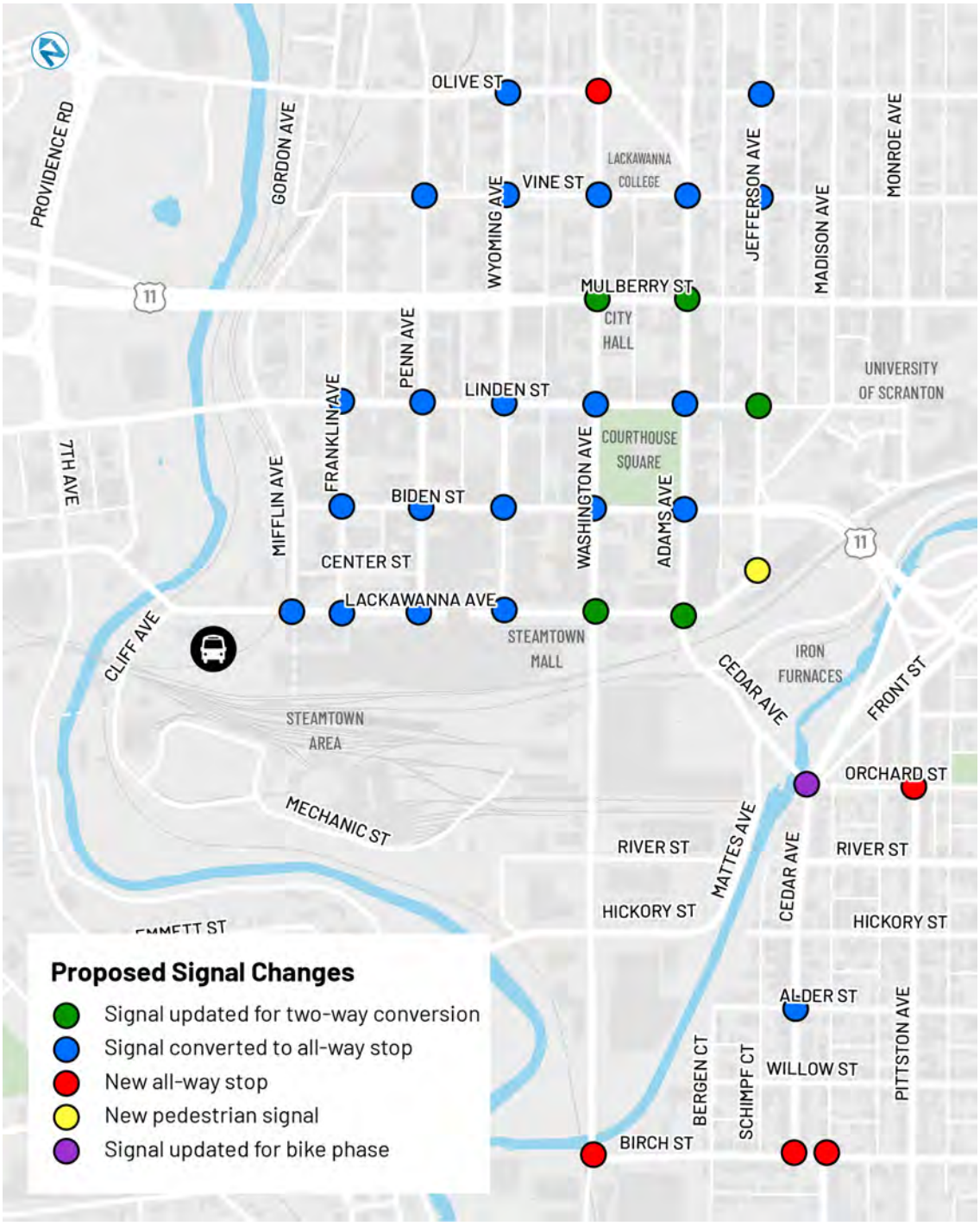
waits at signalized intersections are often 30 seconds long or longer, and, across a network, can add up to a lot of time wasted. Surprisingly, more stops can mean a quicker commute.

Application To Downtown Scranton

The State of Pennsylvania required Philadelphia to remove signals where traffic volumes did not surpass a specific threshold, but there is no single standard applied nationally. A general rule used by some traffic engineers is that, to warrant a signal, an intersection should process a minimum of 800 vehicles per hour, at least 150 of which are on the lower-volume street. Eight hundred vehicles per hour translates into about 8,000 trips per day. A review of traffic volumes in downtown suggests that, aside from the state route on Mulberry and Jefferson, and a few locations on Washington Avenue, Wyoming Avenue, and Lackawanna Avenue, there is likely not an intersection whose traffic volume merits a signal.

Aside from traffic volume, the other reason for using signals rather than all-way stop signs is that the latter can cause confusion on streets that have more than one lane in any given direction—who gets to go first? This problem is solved when two-lane one-ways are converted to two-way traffic, as is proposed for Linden Street, Biden Street, Washington Avenue, and Adams Avenue. Once these changes are made, there will likely remain no justification for traffic signals on any throughfares within the study area except for the high-volume intersections mentioned above.

Looking comprehensively at downtown, the plan ahead designates all recommended changes to intersection controls downtown, including the conversion of signals to stop signs, the insertion of new stop signs, and some other limited changes. It identifies the five locations—along Mulberry, Jefferson, and Lackawanna, where two-way restoration would require the insertion of new signal heads. This cost would be greatly outweighed by the removal of signals on 22 intersections. These signals could be redeployed elsewhere in Scranton as needed, likely saving millions of dollars over time.



Proposed changes to signals at intersections

Note: Subsequent to this Plan, the intersection of Biden, Jefferson, Lackawanna, and Madison should be studied for changes to support rebuilding this interchange, allowing Biden to become two-way between Adams and Jefferson and supporting other pedestrian safety changes.

Intersections where signals can be replaced with all-way stops are as follows.

- Olive Street at: Wyoming and Jefferson Avenues
- Vine Street at: Penn, Wyoming, Washington, Adams, and Jefferson Avenues
- Linden Street at: Franklin, Penn, Wyoming, Washington, and Adams Avenues
- Biden Street at: Franklin, Penn, Wyoming, Washington, and Adams Avenues
- Lackawanna Avenue at: Mifflin, Franklin, Penn, and Wyoming Avenues
- Cedar Avenue at Alder Street

Several uncontrolled intersections downtown would benefit from the addition of a new all-way stop signs. Other locations currently controlled by two-way stops would be made safer and more walkable with four-way stops. At Birch and Cedar in the Iron district, traffic snakes through speedily due to the ambivalent stop sign pictured below.

At Birch and Cedar, introducing an all-way stop and removing the "Except Right Turn" sign would calm traffic in this uncomfortable location.

All locations designated for new all-way stops are as follows:

- Birch Street at both intersections of Cedar Avenue

- Birch Street at South Washington Avenue
- Orchard Street at Pittston Avenue
- Olive Street at Washington Avenue

The introduction of two-way travel will require new signal heads to be installed at the following five intersections:

- Mulberry Street at Washington and Adams Avenues
- Lackawanna Avenue at Washington and Adams Avenues
- Linden Street at Jefferson Avenue.

There is also one location, Cedar Avenue and Orchard Street, where the signal will need to be updated for a bike phase, further discussed in the bike plan ahead.

One notable location is the east end of Lackawanna Avenue, which will need a new pedestrian signal due to the introduction of a missing crosswalk (discussed in Chapter 5). This particular location provides no safe crossing into downtown from the bus stop on the hotel side of Lackawanna Avenue; the closest crossing is at the entrance to the expressway, which is confusing and poorly signaled. A new signalized mid-block crossing here will improve safety for all pedestrians, especially bus riders.

It is to be expected that such a significant change to the downtown signal regime will be met with legitimate concern that unanticipated changes could cause confusion and resulting collisions. It is important to note that previous similar conversions have not led to a temporary increase in crashes. That said, it is recommended that each intersection conversion be widely publicized and begin with the changing of all signals to flashing red lights in both directions as the all-way stop signs are introduced. The signals should be bagged and removed only after a trial period.

4. Providing Proper Walk Signals

Throughout the United States, there is a wide variety of approaches to pedestrian signalization at intersections, based in part on when a City last updated its system. In the late 20th century, the trend in downtowns was towards the installation of walk-signal request buttons, which typically prioritize the movement of vehicles at the expense of pedestrian convenience. More recent trends point in the opposite direction.

A "beg button" in South Scranton

In their most common form, push-button-enabled walk signals generate a walk sign only when pushed, typically after a considerable wait. These signals present several advantages. They maximize the flow of automobiles and minimize the likelihood that an emergency vehicle will have to wait for an intersection to clear as vehicles wait for a green light. Specifically, they make transponder-based signal-preemption systems more effective, since a signal in front of an emergency vehicle can only be turned green once an intersection has been given adequate time to become clear of any crossing pedestrians.

In theory, the improved response times enabled by pedestrian push-buttons improve public safety and save lives. But that is only a theory, and it is true only if few pedestrians jaywalk. The reality is unfortunately quite different, as the long waits caused by most pushbutton systems generate a tremendous amount of jaywalking. This jaywalking is likely to create more injuries and deaths than those prevented by slightly quicker response times. It is indeed ironic that some of the incidents requiring emergency response are caused by the very systems that makes emergency response faster.

Concurrent Signals

It is due in part to the reality of pedestrian jaywalking that many cities in recent years have been decommissioning their pedestrian push-button systems. New York City has disabled 96% of its push-buttons. A survey of signals in Austin, Gainesville, and Syracuse found only one still-functioning push-button in all three places. Instead, cities have been turning back to a more traditional regime called concurrent signalization. Found in America's most walkable downtowns like San Francisco, Washington DC, Chicago, and Philadelphia, concurrent

signalization means that pedestrians receive the walk signal at the same time that the cars next to them get the green, automatically, without having to ask for it. When you arrive at an intersection, if you can't cross in one direction, you can cross in the other; there is always a way to walk. If your path is diagonal to the grid—as most are—you may never need to stop.

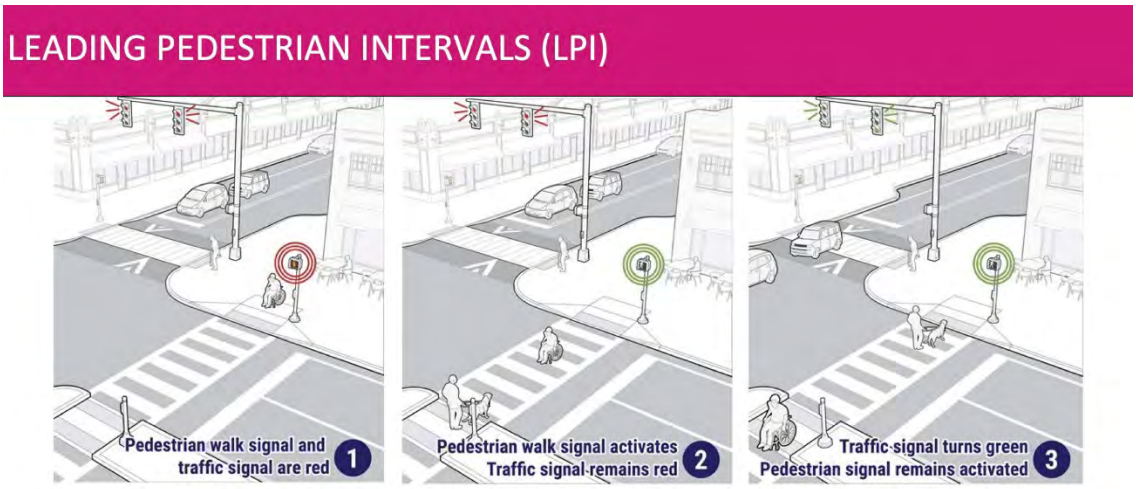


Image source: Massachusetts Pedestrian Transportation Plan

Unlike push-buttons, concurrent signalization puts pedestrians on an even standing with drivers. They can—and should—be made even safer with something called an LPI—a Leading Pedestrian Interval. LPIs give crossing pedestrians a few-second head start before the green light, so that they can claim the intersection, causing turning drivers to proceed with greater caution. LPIs in New York City were found to reduce the number of turning crashes by 28%, while reducing crash severity by 64%. They are becoming common all across the U.S.

Beyond push-buttons, one other factor that discourages walking—and annoys drivers—is long signal cycles at intersections. Long green lights are more efficient than short ones—they move more cars—but they frustrate drivers with long waits, contribute to road rage, and make walking extremely ineffective. Walkable downtowns tend to limit their signal cycles to 60 seconds or less, and 30-second full cycles are not uncommon. It takes a typical pedestrian ten seconds to cross four lanes of traffic, so, along with concurrent signalization, shorter signal cycles are both possible and desired in supporting greater walkability.

Worst In Class

Many people seem to jaywalk much of the time in Scranton because the signalization regime is so punishing to pedestrians. This dangerous jaywalking is a direct outcome of the push-button system, and any contention that this system contributes to public safety is quickly disproved by observing pedestrians negotiate downtown Scranton.

While there may be other downtowns with worse push-button-induced jaywalking than Scranton, we haven't seen them. Over 30 years, we have certainly never conducted a study in a place where walking was so consistently thwarted by the signalization regime. Any serious effort to encourage walking in Scranton must acknowledge that the current circumstances represent a crisis. When the typical stroll across downtown presents a choice between dangerous jaywalking and a wait of 30 seconds or more at almost every intersection, few people with a choice will choose to walk, and many who do will dodge traffic against the light.

The proper solution to downtown Scranton's pedestrian frustration and rampant jaywalking would be to reprogram all remaining signals to run concurrent cycles enabled with Lead Pedestrian Intervals. We say "remaining signals" because the replacement of many signalized intersections with all-way stop signs will go a long way to fixing this problem. But for those that remain, concurrent signalization with LPIs is needed. If desired, these lights could still summon an audible signal upon push-button request, as is recommended to assist the visually impaired.

Emergency Services and PennDOT Jurisdiction

Representatives of emergency services have expressed a concern that the above solution will slow response times. This concern is legitimate but must be weighed against the desire to prevent pedestrian injury and death on an everyday basis. Response times are easy to measure, while the number of pedestrians injured specifically due to signal-induced jaywalking is not. The decision about where the current push-button regime should remain must be made with consideration of both competing factors.

In this context, it is understandable that certain key intersections close to the downtown fire station might merit continued push-button status, at least at certain times of day. Rather than opposing a broad swath of signal conversions, it is hoped that emergency services personnel will identify a limited number of high-emergency-traffic intersections that merit special consideration.

Review of the location of the Fire Headquarters downtown would suggest that this condition is applicable to the Mulberry/Jefferson state route as well as Adams and North Washington Avenues, but likely not elsewhere. If emergency services personnel do not have the mandate to consider everyday pedestrian safety on par with response time, then the decision-making on this important topic must defer to City officials with a broader public-safety mandate.

State roads also require special attention. For those signalized intersections along Mulberry, Jefferson, and any others that are PennDOT-controlled, the City should present PennDOT with a straightforward consolidated request to update the pedestrian phasing. Such changes are in keeping with new statewide policy adopted in 2021, so should be met with approval.

Cycle-Jumping: An Interim Improvement

It was determined in conversation with Public Works representatives that one small improvement could be made immediately to many downtown signals. Currently, if someone pushes a button to cross a street at a time when cross-traffic is stopped, they must wait for the current phase to end, and the subsequent (cross-traffic) phase to end as well, in order to receive the walk sign at the beginning of the next full cycle. These waits often last more than a minute; in one instance, by the Martz Bus Terminal on Lackawanna, the wait lasted more than 90 seconds. Given that pedestrian crossing time is considerably shorter than many signal phases, a pedestrian requesting a walk signal when cross-traffic is stopped should be able to receive that signal immediately, so long as there is adequate time remaining in the current phase for them to cross safely.

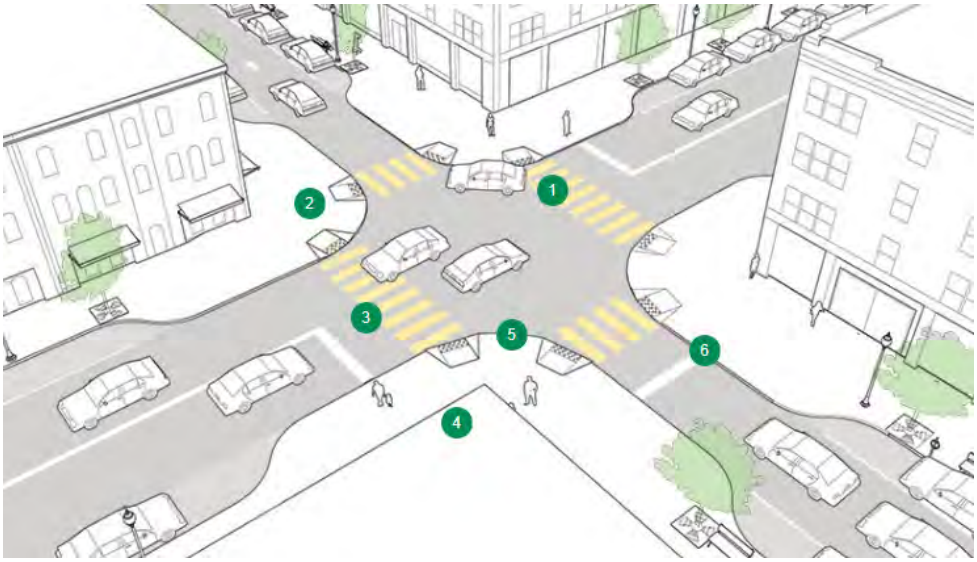
This change should be implemented as quickly as possible at all downtown signals, but in most cases only as a temporary measure until signal removal or concurrent signalization can be implemented.

5. Providing Proper Crosswalks

One does not need to commission a downtown streets plan to understand the need for proper crosswalks at all intersections. Yet, as in many cities, crosswalks in Scranton are not consistently well-marked, and many are not up to the current best-practice standard of striping. Part of a commitment to safety is ensuring that the annual street-maintenance budget includes funding for bringing crosswalks up to date and keeping them well painted.

Established and illustrated by the National Association of County Transportation Officials, that standard includes the following (Source: *NACTO Urban Street Design Manual):*

1. Stripe all signalized crossings to reinforce yielding of vehicles turning during a green signal phase. The majority of vehicle-pedestrian incidents involve a driver who is turning.
2. Stripe the crosswalk as wide as or wider than the walkway it connects to. This will ensure that when two groups of people meet in the crosswalk, they can comfortably pass one another. Crosswalks should be aligned as closely as possible with the pedestrian through zone. Inconvenient deviations create an unfriendly pedestrian environment.
3. High-visibility ladder, zebra, and continental crosswalk markings are preferable to standard parallel or dashed pavement markings. These are more visible to approaching vehicles and have been shown to improve yielding behavior.



The numbers above correspond to the recommendations here.

4. Accessible curb ramps are required by the Americans with Disabilities Act (ADA) at all crosswalks.

5. Keep crossing distances as short as possible using tight corner radii, curb extensions, and medians. Interim curb extensions may be incorporated using flexible posts and epoxied gravel.
6. An advanced stop bar should be located at least 8 feet in advance of the crosswalk to reinforce yielding to people walking. In cases where bicycles frequently queue in the crosswalk or may benefit from an advanced queue, a bike box should be utilized in place of or in addition to an advanced stop bar. Stop bars should be perpendicular to the travel lane, not parallel to the adjacent street or crosswalk.

Where do crosswalks belong? It can be plainly observed that the absence of a crosswalk will not deter pedestrians from jaywalking across a street that they feel is safe to cross. Unfortunately, perceptions of safety can be wrong. For that reason, it makes sense to provide crosswalks wherever people are currently crossing in significant numbers, as that will help drivers to anticipate pedestrians. Supplementing that crosswalk with a pedestrian-activated beacon such as a HAWK is needed in places of real danger. To curtail dangerous jaywalking, HAWKs should actuate within a few seconds of being triggered.

This planning process identified three problems with crosswalks where significant pedestrian volumes are not met by adequate crossing facilities. These issues are:

- Lack of crosswalk standards
- Wide intersections with poor sightlines
- Missing crosswalks at key locations

The recommendations ahead address each of these problems and offer potential solutions.

Lack of Crosswalk Standards

Faded, inadequate crosswalk at intersection of Cedar Avenue and Hickory Street in South Scranton

Many crosswalks in Scranton are in poor condition, with faded crossings at multiple intersections throughout the downtown. The study team observed particularly poor conditions at the following intersections in the downtown core:

- All intersections along Olive Street
- Vine Street at Penn, Jefferson, Madison, and Monroe Avenues
- Mulberry Street at Mifflin, Penn, Wyoming, and Adams Avenues
- Biden Street at Mifflin and Jefferson Avenues
- Lackawanna Avenue at Mifflin, Penn, and Adams Avenues.

Other crosswalks in the Iron District are in poor condition as well, particularly along Pittston Avenue. The crossings of Pittston at Orchard, River, Alder, and Willow are fading and include standard crosswalk markings instead of the best-practice continental markings. In contrast, the intersections on Pittston Avenue at Hickory and Birch are well designed, meeting multiple of the NACTO standards, with high-visibility continental markings, accessible curb ramps, curb extensions, and advanced stop bars.

In addition to the faded conditions of many Scranton crosswalks, the City does not have a standard for its striping. Many intersections in South Scranton are equipped only with parallel

markings, while most intersections in the downtown core have more visible ladder crosswalks.

Scranton has an opportunity to create a standard for its crosswalks based on best features found at different locations in the city. The crossings at the University of Scranton meet many of the requirements for safe and visible crosswalks, and another singular crosswalk mid-block on Lackawanna Avenue can serve as a guide for good crosswalk practice.

Overall, this plan recommends that Lackawanna Avenue undergo a full rebuild, as the current configuration is too wide and its treeless median is inappropriate for an urban setting. Both factors contribute to a lack of pedestrian safety, particularly at its crossings, as multiple residents and business owners reported during stakeholder meetings. However, one crosswalk on the 500 block of Lackawanna Avenue (pictured below) represents relatively good design in some respects, especially compared to others throughout the city. A curb extension on the southern edge narrows the street at the crossing, and the contrasting material of the crosswalk makes it more visible to drivers.

The 500 block of Lackawanna Avenue, looking west (Photo via Google Maps)

The crosswalks at the University of Scranton are similarly distinct. While NACTO standards suggest that the stripes be wider than seen below, the markings are clearly visible on the street, thanks to a change of material from asphalt to brick pavers. The sidewalks have accessible curb ramps, and the intersections have clear stop bars, although not as far from the crosswalk as NACTO guidelines dictate.

Mulberry Street at Jefferson Avenue (Photo via Google Maps)

Any new standard should include horizontal markings instead of the two scant parallel lines (the most common crosswalk design in South Scranton), as the ladder striping offers higher visibility to drivers. Although more costly than painted crosswalks, built and raised crosswalks that can act as speed tables are ideal. The raised area, with its gentle but significant slope, encourages drivers to approach them more slowly than a flat surface. Stop bars ahead of the crosswalk are a necessary addition to provide pedestrians with adequate space for crossing, and curb extensions buffering crosswalks help to narrow the intersection. Many of the interventions mentioned above can be achieved inexpensively through paint on the street, but higher-cost interventions like built crosswalks will have a more significant impact on safety.

Crosswalks can also be an opportunity for public art. Such initiatives require collaboration among the City, local artists, and local non-profits—as well as a willingness to accept crosswalks that do not conform to a national standard. The Asphalt Art Initiative from Bloomberg Philanthropies, which has created artistic crosswalks in multiple cities throughout the U.S., documents how these efforts have increased pedestrians safety significantly. According to a study published in April, 2022 in partnership with Sam Schwartz Engineering, there was a 50 percent drop in collisions at intersections with creatively painted crosswalks, as well as a 27 percent increase in the rate of motorists yielding to pedestrians.[3] There are

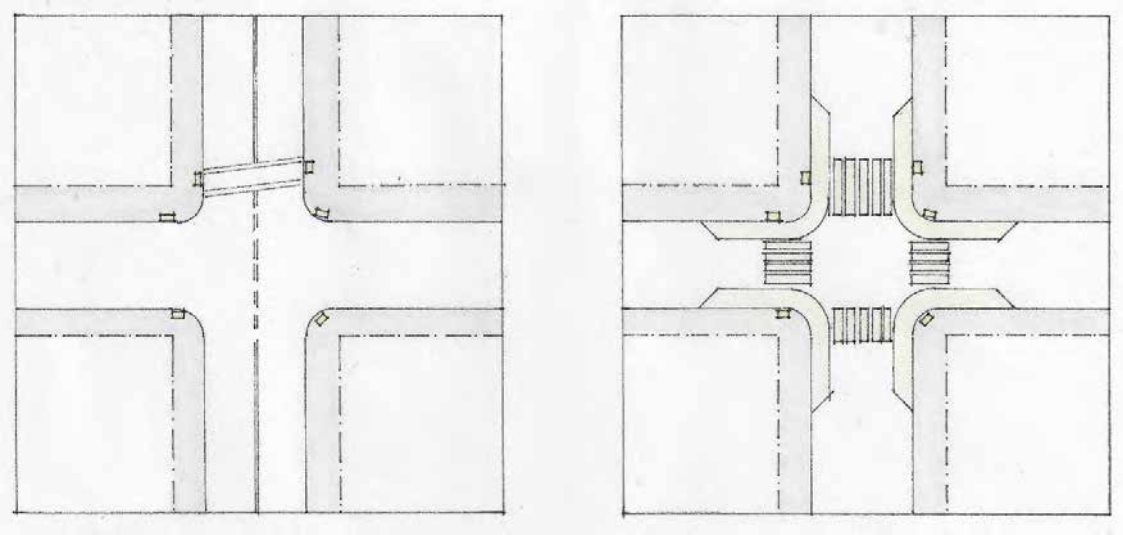
[3] Page, Sydney. "Art Painted on Crosswalks Makes Streets Safer, Group Says." 8 June 2022. The Washington Post. https://www.washingtonpost.com/lifestyle/2022/06/08/crosswalk-art-safety-bloomberg/.

opportunities in Scranton for both painted crosswalks and painted curb extensions to enliven the streetscape and increase pedestrian awareness.

Regardless of the specific style and design features of the crosswalks, however, perhaps the most important factor is the City's commitment to its maintenance schedule and paint budget, so that any crossings can be repainted as soon they begin to fade.

Wide Intersections with Poor Sightlines

While many of the intersections on Cedar Avenue could easily fall into the first category as well thanks to their poor condition, intersections along this avenue are unique due to Cedar's potential as a retail corridor and its role as primary access point to South Scranton. Crossings at intersections on this street are long—lacking curb extensions—and pedestrian sightlines are frequently obstructed by cars parked close to the corners. For this reason, as illustrated in the sketch ahead, this Plan proposes a special intersection design for all the crossings on Cedar in the study area to create uniformity along the corridor, specifically at River Street, Hickory Street, Alder Street ,and Willow Street.



Typical existing (left) and proposed (right) crossings for South Scranton

This new "cross-crown" design would have the benefit of both improving intersection safety and trademarking the district through unique striping. Inexpensive painted curb extensions would visually narrow the crossings while pushing parked cars back slightly, creating a proper sight triangle around the crosswalk. Cedar Avenue should be the first to receive this design due to its position as the main access point to South Scranton from downtown, but intersections on Pittston Avenue would benefit as well.

Other Stripes

Also noticeable in the above drawing is how the centerline on Cedar Avenue has been removed. A recent British study found that removing the centerline from six well-used streets effectively lowered driving speeds by an average of 7 MPH. It was found that, like wide lanes, centerlines give drivers confidence that they have a clear path, resulting in more speeding.

Removing centerlines from this and other British streets reduced driving speeds an average of 7 mph.

An important caveat to consider here is that centerlines can be an important indicator that a street is two-way rather than one way. As it converts streets from one-way to two-way, the City should stripe centerlines at each intersection so that turning drivers are not confused. But these centerlines should not continue more than 50 feet from the intersection, to limit mid-block speeding.

Unlike centerlines, striped parking spaces slow drivers by giving the impression of a constricted roadway. Whether it is marked with a continuous stripe or as individual spaces, white paint at the edge of the parking lane should be a standard feature in all parked streets except in lower-density residential locations, where streets are typically unstriped except at corners.

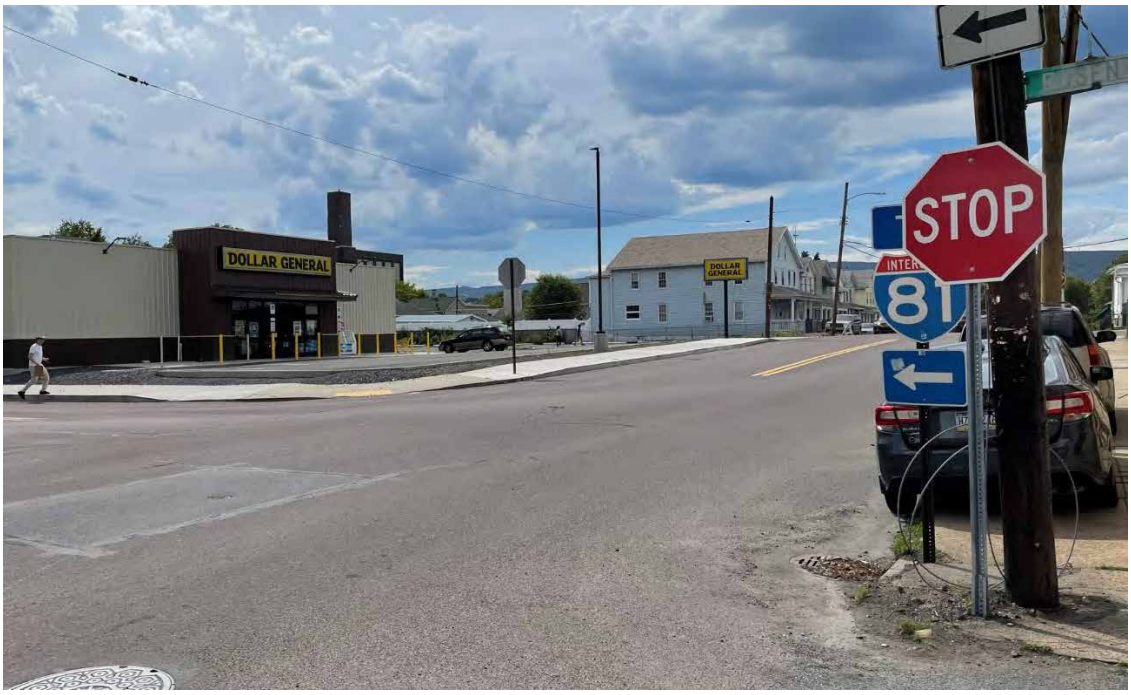
Missing Crosswalks at Key Locations

In addition to locations where crosswalks are poor, there are also a few key crossing locations downtown that have no crosswalk at all. These include:

Mid-block crossing on Lackawanna Avenue approaching Jefferson Avenue: The Radisson Hotel generates a lot of foot traffic to the downtown which is not well-met through walking connections through their parking lot. Where the path from their door to a bus stop ends, near the curve of Lackawanna Avenue, is recommended for a mid-block crossing.

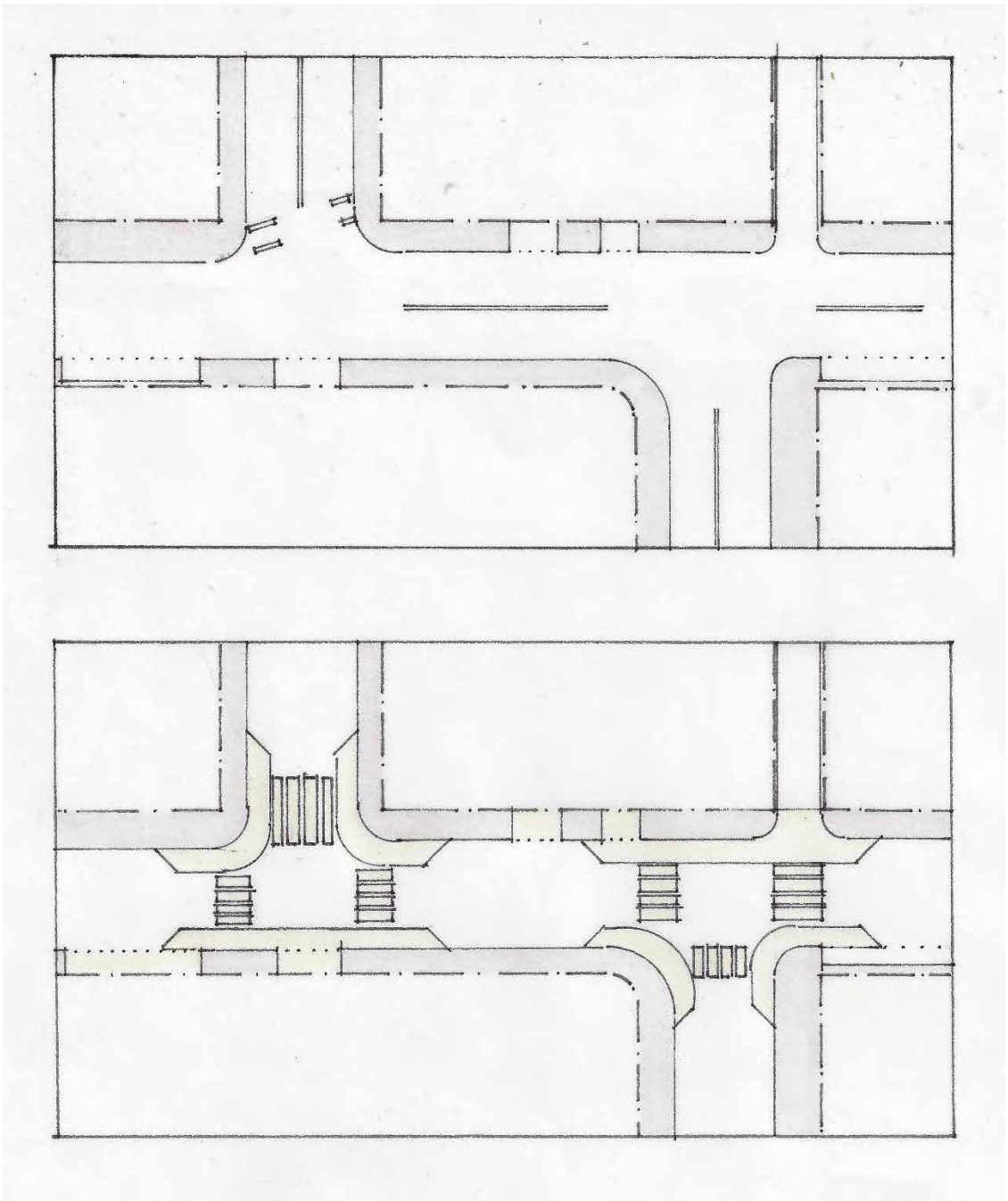
Lackawanna Avenue approaching the curve, at the Radisson Hotel, a prime location for the addition of a crosswalk and cross-bike with a pedestrian beacon

The recommendations for Lackawanna Avenue herein also include a cycle track on its south flank, ending at the Radisson Hotel. A cross-bike/crosswalk here would allow cyclists, pedestrians, and bus riders to safely cross the curving avenue. A flashing beacon (HAWK or RRFB) at this new crossing would increase its safety. Providing a Lackawanna–Biden connection via this crossing and the alley (Kressler Court) would be especially helpful, since continuing to walk east along Lackawanna leads only to the expressway juncture which cannot be crossed. (An eventual rebuild of Lackawanna Avenue's streetscape should also ensure a contiguous sidewalk along the south side of the street.)



The Dollar General on Birch Street (Cedar Avenue at left)

Birch Street and Cedar Avenue: This intersection at the southern edge of the study area is unusual because one of the streets does not cut directly across the other. Instead, the intersection functions more like an S-curve from Cedar north of Birch to Cedar south of Birch (see figure 15). In addition to needing updated stop signs, the intersection also lacks crosswalks entirely, a true hazard given the presence of the new Dollar General there. With the inclusion of a new set of all-way stops, new crosswalks would create a safer pedestrian environment. Additionally, as with the "cross-crowns" proposed for Cedar Avenue above, painted curb extensions defining parallel parking areas would shorten crossing distances while improving sight triangles in this location. It would also encourage drivers to park on the street rather than in the sidewalk area as now commonly occurs. An illustration of the proposed pavement markings is shown ahead.

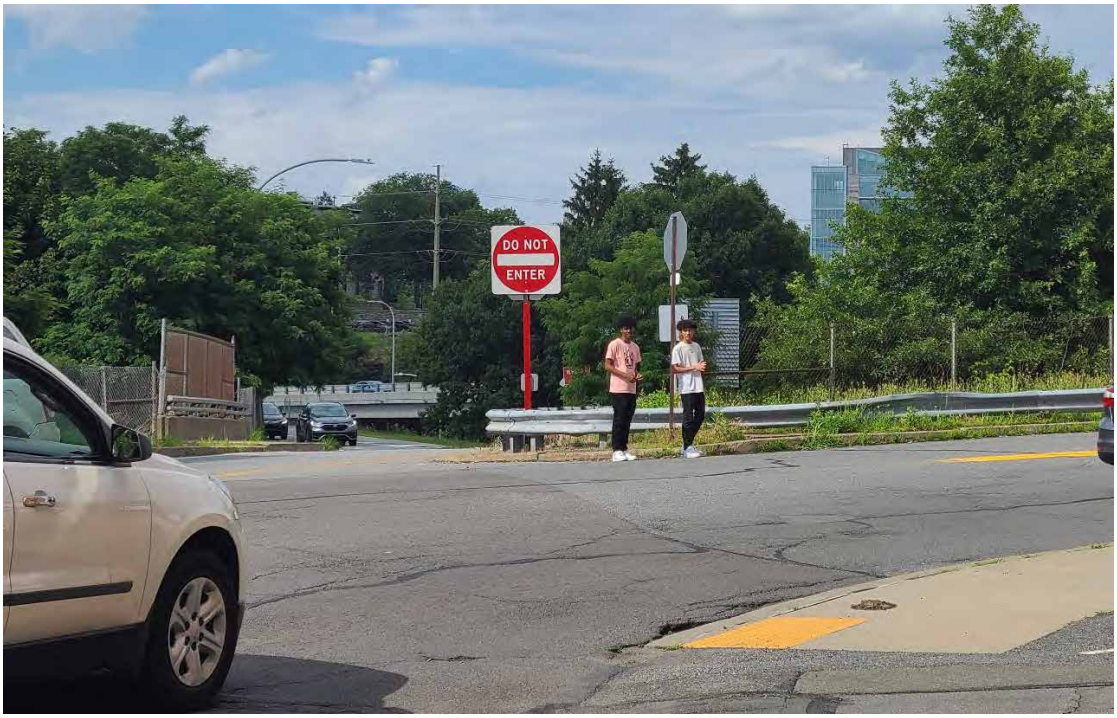


Existing (top) and proposed (bottom) crosswalks with stop signs at Birch and Cedar

Pittston Avenue and Front Street: While Cedar Avenue is the best pedestrian access point from the downtown core to South Scranton, the neighborhood can also be reached by walking along the expressway to Pittston Avenue. There is no pedestrian infrastructure to safely guide walkers through this trajectory, but a significant number attempt it. Indeed, there is a sign farther east at the Front/Moosic intersection prohibiting pedestrians, but it directs them to a supposed crosswalk farther west, where there is in fact no crosswalk.

Looking north from Moosic Street at Front Street

A crosswalk connecting both the expressway exit and Front Street to South Scranton would provide much safer access here. There is already a stop sign at the expressway exit, so a new high-visibility crosswalk would improve driver awareness of pedestrians crossing here.



Teens trying to cross Front Street at Pittston, with no crosswalks.

6. Lanes of Proper Width

Different width traffic lanes correspond to different driving speeds. A typical American urban lane is 10 feet wide, which comfortably supports speeds up to 35 mph. A typical American highway lane is 12 feet wide, which comfortably supports speeds of 70 mph. Drivers instinctively understand the connection between lane width and driving speed, and speed up when presented with wider lanes, even in urban locations. For this reason, any urban lane wider than 10 feet encourages speeds that increase risk to people walking.

Many streets in downtown Scranton contain lanes that are 12 feet wide or more, and drivers approach highway speeds when using them. However, the correlation between lane width and driving speed, crash frequency, and crash severity is a very recent discovery of the traffic engineering profession and contradicts decades of conventional wisdom within that profession. Even today, many traffic engineers will still claim that wider lanes are safer. This is accurate when applied to highways, where most people set their speeds in relation to posted speed limits. But on City streets, most people drive not the posted speed, but the speed which feels comfortable, which is faster when the lanes are wider. Fortunately, several recent studies provide ample evidence of the dangers posed by lanes 12 feet wide and wider in a downtown context.

Linden Street is one of many downtown thoroughfares with lanes 12 feet wide.

In acknowledgement of this body of research, numerous organizations and agencies, including NACTO (The National Association of City Transportation Officials), have endorsed 10-foot lanes for use in urban contexts. NACTO's *Urban Street Design Guide* lists 10 feet as the standard, saying, "Lane widths of 10 feet are appropriate in urban areas and have a positive impact on a street's safety without impacting traffic operations." They add: "Narrower streets help promote slower driving speeds which, in turn reduce the severity of crashes."

Most streets in downtown Scranton exceed the 10-foot standard, and this Plan attempts to remedy all of them through different interventions that narrow the travel lanes. They can be sorted into five main groups:

- **Considerably oversized two-lane streets where there is enough excess width to introduce new on-street parking or a bike lane:** Mifflin, Penn, Wyoming, and Lackawanna Avenues; Olive, Vine, Mulberry, and Linden Streets
- **Slightly oversized two-lane streets where parking lanes can be widened to bring the driving lanes closer to 10 feet:** Franklin and North Washington Avenues
- **Street segments where parking can replace turn lanes:** Franklin Avenue (at Mulberry Street), Penn Avenue (at Vine Street), N Washington Avenue (at Linden Street), Linden Street (at N Washington Avenue)
- **Slightly oversized two-lane streets where the sidewalk can be widened to narrow travel lanes:** Biden Street
- **Most of the above on Lackawanna Avenue:** As noted below.

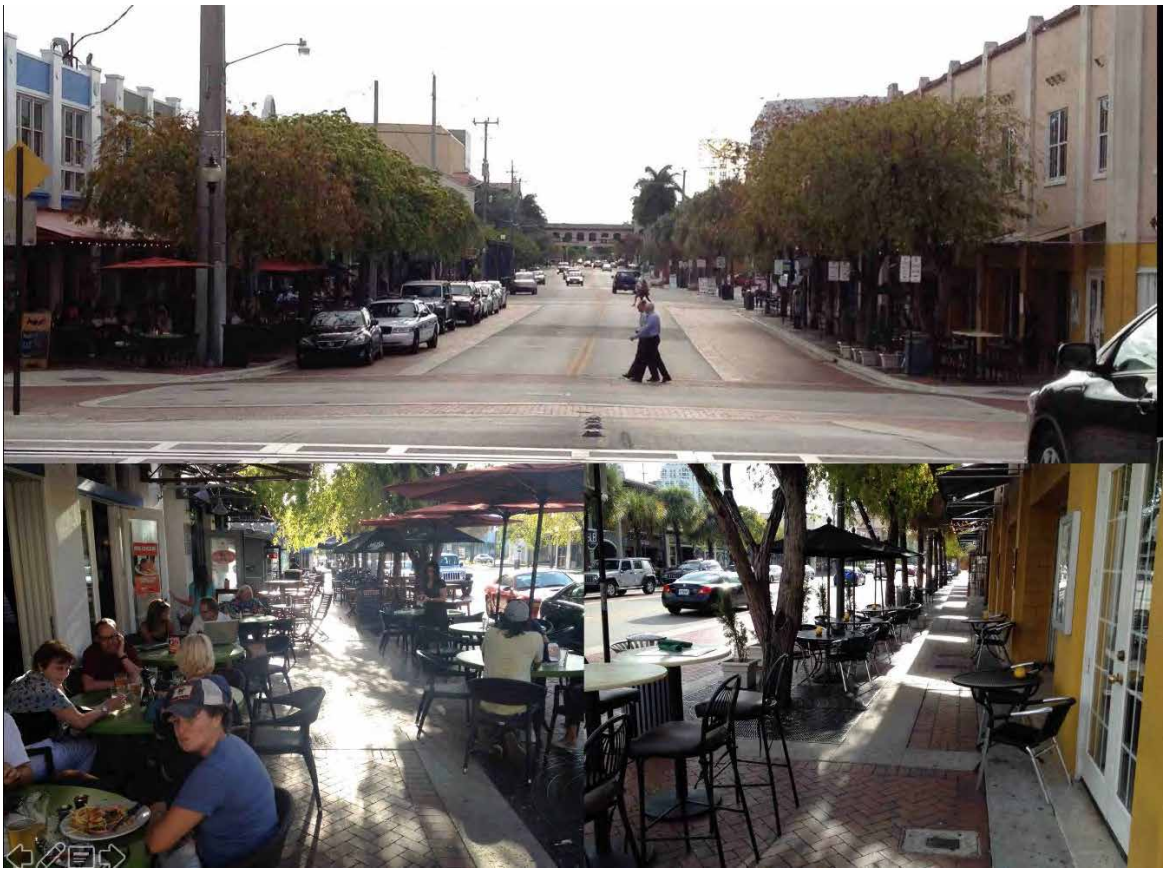
Lackawanna Avenue is in bad shape but has tremendous potential. The site of many crashes, it combines highway details (wide and extra lanes, a paved median to the east) with relatively low volumes, making it ideal for transformation. Additionally, its scarcity of southern curb cuts makes its south flank the ideal location for a crosstown cycle track. Along with Biden Street, for which a new streetscape is proposed in celebration of its namesake, Lackawanna is the other downtown street for which more than a restriping makes great sense.

In addition to a tree-lined cycle track, a properly remade Lackawanna Avenue would include a median of trees as well, laid out more like a plaza, not in a raised planter, but in cobblestones flush with street level. This cobble center would allow for a slow left-turn lane where needed, achieved simply by not planting a couple of trees at the intersection approach. The proposed redesign of this street is shown further in Part II.

7. Continuous On-Street Parking

Curb parking provides an essential barrier of steel between the roadway and the sidewalk so that pedestrians can feel fully at ease. It also causes people driving to slow down out of concern for possible conflicts with cars parking or pulling out. On-street parking provides much-needed life to City sidewalks, which are occupied in large part by people walking to and from cars that have been parked a short distance from their destinations.

On-street parking is also essential to successful shopping districts. According to the consultant Robert Gibbs, author of *Urban Retail,* each on-street parking space in a vital shopping area produces between $150,000 and $200,000 in sales.



Fort Lauderdale: Parking was only allowed on one side of Himmarshee Boulevard until corrected by a study like this one. Sidewalk dining was only successful on the parked side of the street.

Scranton's current on-street parking management currently suffers because it depends on machines that are often broken, leaving drivers frustrated and feeling unwelcome downtown. This presents a problem for the growth of downtown businesses because the lack of easy

parking can constrain access for people who need to drive to reach services. Obstacles in paying for parking can also create the perception that it is not easy to access the downtown.

Supply

Several streets in downtown Scranton lack a significant amount of their potential on-street parking due to driving lanes that are either too wide or too many in number. Bringing missing parking back will contribute markedly to the safety and success of downtown.

The strategy of this Plan is to minimize the number of on-street parking spaces lost to two-way reversion, and then to add more curb parking wherever it fits, resulting in a considerable net increase in parking. The most meaningful opportunities are in five locations:

- **Mifflin Avenue**: Mifflin Avenue currently has on-street metered parking only on the 100, 200, and 400 blocks, but there is space for parking on the eastern side of the 300 block, as well as the western side of the 400 block. One significant aspect of parallel parking is that it does not slow speeding traffic if the spaces are empty. Mifflin Avenue and a handful of other locations in the downtown are rarely used for parking because their slightly remoteness is not properly reflected in their cost. As discussed ahead, it is recommended that parking be made free in a handful of key locations, including along spots on Mifflin.
- **Lackawanna Avenue**: One factor that is impeding the greater success of the heart of Scranton is the absence of continuous parallel parking on both sides of Lackawanna Avenue. Almost every single successful main street in the United States has parking on both flanks, not just one.
- **Mulberry Street west of Franklin Avenue**: Lane reductions on Mulberry Street can also increase the parking supply. West of Franklin Avenue, Mulberry has between one and two more driving lanes than its heavy traffic demands. These can be converted into parallel parking.
- **Olive Street:** This street currently only has parking on one side along its full length through downtown. While the street does narrow by four feet east of Penn Avenue, it still wide enough to hold parking on both sides.
- **Vine Street:** Several blocks of Vine Street West of Washington Avenue are missing parallel parking on their south curb despite there being ample space for it.

Parking supply and management opportunities will be discussed further in Part III: The Useful Walk.

8. Including Bike Lanes

Cycling is the largest planning revolution currently underway… in only some American cities. The news is full of American cities that have created significant cycling populations by investing in downtown bike networks. Another good reason to institute such a network is pedestrian safety: bikes help to slow cars down, and new bike lanes are a great way to use up excess road width currently dedicated to oversized driving lanes. When properly designed, bike lanes make streets safer for people who are biking, walking—*and driving*.

The insertion of a cycle track on this Brooklyn Street dramatically improved safety for all road users without reducing daily car through-put . Such facilities are currently uniquely illegal in Pennsylvania.

This was the experience when a cycle track (protected two-way bike lane) was introduced on Prospect Park West in Brooklyn, NY. A 3-lane one-way street was converted to 2 lanes, parked cars were pulled 12 feet off the curb, and a cycle track was inserted in the space created. As a result, the number of weekday cyclists tripled, and the percentage of speeders dropped from about 75 percent of all cars to less than 17 percent. Injury crashes to all road users went down by 63 percent from prior years. Car volume and travel times stayed almost exactly the same—the typical southbound trip became 5 seconds faster—and there were no negative impacts on streets nearby.

Additionally, bike lanes are good for business. A study in Portland, OR, found that customers arriving by bike buy 24 percent more at local businesses than those who drive, and merchants along 9th Avenue in New York City showed a 49 percent increase in retail sales after buffered bike lanes were inserted.

New York has dominated the biking headlines in recent years because of its investment under Mayor Bloomberg in a tremendous amount of cycle infrastructure. But many smaller cities are making significant cycling investments, with the goals of reducing car dependence, achieving higher mobility at lower cost, and especially attracting young entrepreneurial talent. More than half of the states in the US already have buffered bike lanes as part of larger downtown networks.

Experience in many cities is making it clear that the key to bicycle safety is the establishment of a large biking population so that drivers expect to see them. In turn, the key to establishing a large biking population is the provision of a useful bike network, one that safely gets many riders where they need to go in a low-stress environment.

What constitutes "low stress" depends on the type of street in which the bike network is located. For higher-speed multilane roads like Wyoming Avenue, the bike lanes should be physically separated from moving vehicles to feel safe, either out of the road or protected by vertical barriers. When a street is designed to invite speeds above thirty miles per hour, it is not prudent to include bike lanes without some form of physical protection.

A Menu of Bike Facilities, Truncated

There are four types of cycle facilities referenced in this Plan: two-way cycle tracks, protected lanes, buffered lanes, and striped lanes:

- Two-way cycle tracks are bike lanes that are physically separated from vehicle traffic that allow bicycle movement in two directions on one side of the road.[4] The facilities are best provided out of the roadway, up on the sidewalk edge.
- Protected bike lanes use a physical barrier to provide separation between the bike lane and vehicle traffic. The most common and efficacious type of protected bike lane uses a row of parked cars as that physical barrier. As discussed below, this is currently banned in Pennsylvania.
- Buffered lanes include some space—typically 3 to 6 feet—between the bike lane and traffic or car doors, but no substantial barrier, and are most effective on slower streets where extra driving lanes can be repurposed into cycling facilities.
- Striped lanes designate exclusive space on the road for bicyclists but without an additional painted buffer or physical protection. These lanes are most often deployed to use up additional road width where there is not enough room for (wider) buffered lanes.

[4] NACTO. "Two-Way Cycle Tracks." Urban Bikeway Design Guide. https://nacto.org/publication/urban-bikeway-design-guide/cycle-tracks/two-way-cycle-tracks/.

This ample menu of cycling solutions has unfortunately been dangerously trimmed in Scranton: a paragraph in Pennsylvania's state law has been strangely interpreted to restrict how protected bike lanes can be implemented. As shown in the Brooklyn photos above, pulling cars away from the curb and inserting a bike lane within the vacated space is a common method of creating a protected bike lane, employed with great safety outcomes all across the U.S. Also common across the U.S. are motor vehicle operational laws requiring drivers to park their cars within 12 inches of the curb. Only in Pennsylvania is the latter interpreted to thwart the former. ***No other state so plainly misinterprets an ordinance intended to control driver behavior as intended instead to control street design.*** One can't help scratch their head at how a law intended to save lives has been so deftly repurposed to endanger them.

The Philadelphia Inquirer

TRANSPORTATION

An outdated parking rule in Pa. law threatens the safest kind of bike lanes

Pennsylvania law on street parking is decades old. It limits protected bike lanes.

The parking-protected bike lane on the north side of the Chestnut Street Bridge in Center City. Legislative developments in Harrisburg threaten the future of such lanes.

The Philadelphia Enquirer reports on the State's head-scratching protected-bike-lane ban.

As reported in the Philadelphia Enquirer:

"…the Pennsylvania state legislature recently halted the installation of such bike lanes in Philadelphia, citing a parking code dictating that cars must be parallel parked within 12 inches of the curb or "as close as practicable" to the edge of the left or right-hand shoulder on any state-owned roads[5]."

Although the Pennsylvania State Senate has introduced legislation to get around the code, the bill has stalled. Making the argument that the space for the bike lane is "as close as practicable" has not been effective, as PennDOT relates that other Pennsylvania cities implementing this type of facility were only successful because the lanes were considered "pilot programs." Elevating the bike lane onto an expanded curb is one potential

[5] Fitzgerald, Thomas. "An outdated parking rule in Pa. law threatens the safest kind of bike lanes." 3 June 2022. The Philadelphia Inquirer. https://www.inquirer.com/transportation/protected-bike-lanes-philadelphia-pennsylvania-legislation-20220603.html.

workaround, but it is prohibitively expensive to employ broadly, requiring major construction rather than simple restriping.

As outsiders to Scranton, this Plan's authors find this situation truly perplexing. Unfortunately, Pennsylvanians have been forced to accept a legal interpretation that is vastly divergent from the law's original intent. Like most states, Massachusetts also has a 12-inch rule. Like all states but Pennsylvania, Massachusetts municipalities are allowed to make their streets safer for all users by introducing parking-protected bike lanes. It would be enlightening to trace this bizarre circumstance to its source and determine what motivation or trick of fate has uniquely crippled one state's ability to reduce injury and death.

Additionally, agency representatives have stated that implementing this type of bike lane would require a study period of many months to determine if these facilities are safe, even though such bike lanes are deployed safely across the US, with ample data in support.

It is hoped that this Plan, by presenting this situation frankly and honestly, might add fuel to the fire of the effort to overcome this ruling. In the meantime, streets intended to receive protected bike lanes must instead be planned with buffered lanes, located less safely between traffic and parked cars. Fortunately, there is only one facility downtown that is impacted by this compromise: Wyoming Avenue. The remainder of downtown streets are recommended for other types of lanes, as described ahead.

Other Facilities

Along slower streets, a simple striped bike lane is a great way to welcome bikes and to slow traffic by narrowing oversized driving lanes to the proper width. Downtown Scranton has a handful of streets that encourage speeding by being wider than needed for the smooth flow of traffic. Almost all of these would benefit from the insertion of a single bike lane to visually narrow the available roadway.

To be safe, these lanes should not be in the "door zone" between parked cars and a driving lane; a high percentage of biking injuries come from cyclists being doored into adjacent traffic.

Also not recommended are "sharrows," those prominent in-street logos that advise motorists to share the lane. Recent studies have shown that streets marked with sharrows are in fact more dangerous to cyclists than streets without them. That said, the sharrow logo can be a useful tool for indicating a merge where physical conditions demand that a bike lane must end.

STREETSBLOG USA
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Study: Sharrows Don't Make Streets Safer for Cycling

By Angie Schmitt Jan 14, 2016 141 COMMENTS

Sharrows are the dregs of bike infrastructure — the scraps cities hand out when they can't muster the will to implement exclusive space for bicycling. They may help with wayfinding, but do sharrows improve the safety of cycling at all? New research presented at the Transportation Review Board Annual Meeting suggests they don't.

A study by University of Colorado Denver researchers Nick Ferenchak and Wesley Marshall examined safety outcomes for areas in Chicago that received bike lanes, sharrows, and no bicycling street treatments at all. (The study was conducted before Chicago had much in the way of protected bike lanes, so it did not distinguish between types of bike lanes.) The results suggest that bike lanes encourage more people to bike and make biking safer, while sharrows don't do much of either.

Ferenchak and Marshall's study divided Chicago into three geographic categories using Census block groups: areas where bike lanes were added between 2008 and 2010, areas where sharrows were added, and areas where no bike treatments were added. They then looked at how bike commuting and cyclist injuries changed in these areas over time.

Sharrows without traffic-calming won't do much to make cycling safer. Photo: University of Colorado Denver

Once a common cycle facility, sharrows have fallen out of favor due to research showing poor safety performance.

Few people cycle in downtown Scranton today, but arguing that bicycle infrastructure is unnecessary in a place where few people bike is like saying that you don't need a bridge because nobody is swimming across the river. Currently, the downtown area has no discernable cycling network; indeed, it has no dedicated bicycle infrastructure aside from the Heritage Trail along the Lackawanna River.

This Plan takes advantage of streets with extra lanes and extra-wide lanes to dramatically increase the provision of bike facilities to the point where together they will create something comprehensive enough to be useful. Only when most cyclists can get to most destinations with minimal stress will the network be adequate to create a significant cycling population in downtown Scranton.

The Bike Plan

The Plan outlined ahead is a holistic and implementable strategy designed for the optimization of every street in downtown for the competing demands of providing a complete, connected, and comfortable cycling network while still adequately supporting driving demand and the provision of ample on-street parking. It is one of many possible good solutions, but it is the solution that coordinates properly with this Plan's other recommendations regarding two-way reversion and on-street parking provision.

Several different cycling solutions have been recommended for downtown Scranton in recent years, all with considerable intelligence, and all have received consideration. Many of the other proposals put forward were well thought out, but were not granted the freedom that this Plan was given to reconsider the number of lanes and direction of the streets. Therefore, it learns from these efforts but is more ambitious in its recommendations, which are intended to be implemented on the foundation of other changes to the direction, number, and width of driving lanes. These previous plans are discussed in more detail in Appendix A, Previous Bike Planning.

One of the goals of this Plan has been to locate low-stress cycle facilities within a few blocks of every address in downtown, and that goal is satisfied ahead. However, the plan arose street by street, out of the opportunities available in each one, which could also be described as each street's need for modification. The Bike Plan interventions can be organized into six distinct categories of bike facilities:

1. Sidewalk-level two-way cycle tracks
2. Street-level cycle tracks
3. Protected bike lanes
4. Buffered bike lanes
5. Striped bike lanes
6. Neighborhood greenways

Each of the specific intervention types is described in detail ahead, with its proposed locations listed.

1. Sidewalk-level two-way cycle tracks

Lackawanna Avenue

A sidewalk-level two-way cycle track in Minneapolis

As discussed, there would be many benefits to a full rebuild of Lackawanna Avenue, including the opportunity to create protected bike facilities along most of the Avenue. These should take the form of a two-way cycle track at sidewalk level on the southern edge of the street, which is an ideal space for such a facility due to the lack of curb cuts or intersections crossing it for multiple blocks. Elevating the bike lanes to the sidewalk level also allows for both protected bike facilities and on-street parking, even with the restrictive parking code interpretation in effect. An ideal sidewalk-level cycle track contains two five-foot-wide bike lanes set two feet from the curb, providing a proper "door zone," and separated from the pedestrian sidewalk by a row of trees.

To the east and west, special treatments are needed. At Mifflin Avenue, the westbound bike lane would cross the street (with proper bike crossing markings at the all-way stop). From here across the Lackawanna River, it would then consist of a lane on each curb of the street, each with a striped buffer including vertical bollards. At its eastern end, the cycle track would reach past a north-south facility on Adams Avenue to terminate at the bend in front of the Radisson Hotel, where a new public square is planned (discussed in Part III).

Cedar Avenue

The challenge of connecting Cedar Avenue bike lanes south from the bridge at Orchard Street to the greenway proposed (ahead) for Schimpf Court is best handled by a short cycle track on the west flank of the street, affronting the gas station. This facility would be striped on the existing sidewalk.

2. Street-level cycle tracks

Mifflin Avenue

A street-level cycle track in Washington, DC

A protected two-way bike facility is also recommended for the west flank of Mifflin Avenue, which, like Lackawanna, benefits from an absence of curb cuts, making it truly safe. Since no reconstruction is recommended here, due to its limited pedestrian traffic, this facility would be located at street level. In the short term, the bike lanes should be physically protected by a jersey barrier but, ideally, the state legislature will update the parking code (or PennDOT its interpretation thereof) so that further protection by on-street parking can be provided on the streets two wider segments, between Vine to Mulberry and between Linden and Biden. Further, the segment from Linden to Vine Street should not be striped until the crossing of Mulberry can be improved to include crosswalks, shorten the distance to cross, and include walk and bike signals.

3. Protected bike lanes

Wyoming Avenue (temporarily not protected)

Wyoming Avenue has enough width and is a central enough location to act as the main north-south bicycle corridor for Downtown Scranton. Its ideal configuration would include bike lanes against each curb with a buffer and then a lane of parking in between the bike lanes and two lanes of traffic. However, due to PennDOT's current interpretation of State law (discussed above) these bike lanes will have to sit adjacent to traffic initially, with only a striped buffer. This configuration should be considered temporary until interpretations of State law from key agencies improve to support protected bike lanes.

Protected bike lane in Detroit

Whether ultimately protected or temporarily buffered, there is ample room for bike lanes in Wyoming Avenue once it is narrowed to the two lanes that its moderate traffic counts demand. However, the desire to move more vehicles on Wyoming Avenue might lead PennDOT to insist on left-turn lanes at certain intersections. Where this occurs and the street is too narrow to fit three driving lanes along with parking and cycling, the proper solution is to remove a few parking spaces on the west flank near the corner, to preserve enough width for the bike lanes to continue. This area of removed parking would be as long as the center turn lane, which should be kept quite short given the limited volumes on the street.

Olive and Linden Street, Lackawanna and Cedar Avenue Bridges

On all of the bridges surrounding downtown, streets widen yet no parking is provided. Mulberry Street is not a cycling route. On all the others, bike lanes should be separated from traffic by low jersey barriers or other similar protection. On Linden, Lackawanna, and Cedar, the two extra driving lanes in each direction can be rededicated to buffered bike lanes with protection within the buffer. On Olive Street, an extra 10 feet in the roadway allows narrow bike lanes protected from traffic by a narrow barrier.

4. Buffered bike lanes

Cedar Avenue

South of Lackawanna Avenue, Adams Avenue becomes Cedar Avenue. This thoroughfare is wide enough to include buffered bike lanes on both sides of the street across the bridge to Orchard Street. Cedar Avenue's varied width would result in buffers ranging from two to nine feet across.

A buffered bike lane in Cambridge, MA

S. Washington Avenue

South of Lackawanna Avenue, Washington Avenue is wide enough for buffered bike lanes on each flank. Where left hand turn lanes appear at Hickory Street, the buffers drop out temporarily.

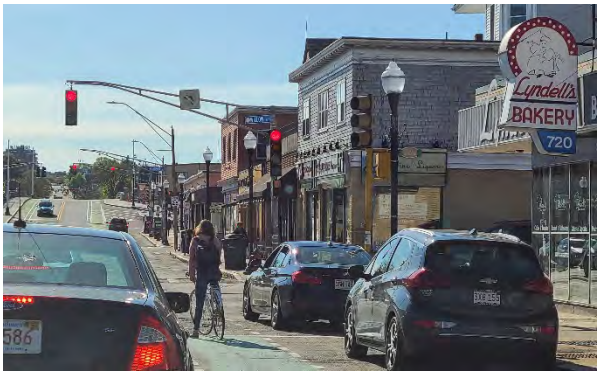
A bike lane with a buffer next to parking in Brooklyn, NY

Hickory Street / Mattes Avenue

There exists another small segment of completed bike lane south of downtown, across the river on Hickory Street. This facility should continue across the bridge, with vertical bollards or a jersey barrier providing protection on the bridge and continue as standard bike lanes for the rest of its length to connect with the proposed bike lanes on Cedar Avenue.

5. Striped bike lanes

Washington and Adams Avenues – One-Way Bike Lane Pair (plus some extensions)



Striped bike lane with street parking in Somerville, MA

Both Washington Avenue and Adams Avenue are about five feet too wide, making them ideal for receiving a single bike lane but not two. When this condition occurs on adjacent streets, it makes sense to split a pair of bike lanes between them. In this case, as they become two-way for cars, Washington and Adams would remain one-way for bikes, southbound and northbound respectively, from Olive Street to Lackawanna Avenue. South of Lackawanna, Washington Avenue widens and can receive a northbound lane as well.

Monroe Avenue

As already mentioned, Monroe Avenue between Mulberry Street and Vine Street should maintain its one-way directionality to fit striped bike lanes in both directions for this block.

Vine Street

Vine Street should receive bike lanes on both flanks from Franklin Avenue to Adams Avenue, At its western end, the two bike lanes should consolidate into the Mifflin Avenue cycle track. Heading east, from Adams to Monroe, Vine Street is too narrow for dedicated bike lanes, so sharrows are needed to indicate the continuity of the facility. East of Monroe, there is room to stripe a single climbing lane east to Nay Aug Park; its westward partner can be a sharrow, since drivers will feel less need to try to pass speedy downhill cyclists. (As noted, sharrows have been deemed unsafe on heavily-traveled streets, and are not a replacement for real bike lanes over long corridors, but they are sometimes needed as transitions through tight spaces connecting more robust facilities.)

Linden Street

Linden Street is the principal east-west axis through the center of downtown, and should include bike lanes on both flanks from Mifflin Avenue to Jefferson Avenue.

Birch Street

Birch Street should include bike lanes on both flanks connecting South Washington Avenue to Bergen Court. (Sharrow markings would complete the connection between Bergen Court and Schimpf Court, where on-street parking is fairly continuous.)

6. Neighborhood greenways

Two of Scranton's many alleys are well located to provide safe, direct paths through downtown, allowing cyclists to avoid busy streets.

A neighborhood greenway in Portland, Oregon

Gordon Avenue

This quiet alley links the downtown bike network to North Scranton, providing potential future connections to the high school and other key destinations across the river, as well as the existing Heritage Trail. Heading south, this corridor also offers a direct link to the cycle track on Mifflin Avenue.

Schimpf Court

Previous plans for the Iron District recommended bike lanes in Cedar Avenue through its retail heart, removing half of its on-street parking. Taking business parking away from this struggling main street in order to encourage more cycling seems politically fraught and potentially unwise. Happily, an alternative corridor for north-south bike travel exists in the form of Schimpf Court, one half block west of Cedar. It will be well used if properly signed and celebrated, perhaps as "the Shimpfway," with proper *bike boulevard* markings throughout.

A Comprehensive Network

Taken all together, the above street-by-street proposals add up to a robust network that provides low-stress access throughout the downtown, as illustrated on the next page. It is not essential that this entire network be built in one fell swoop—although the benefits of doing so in a well-publicized campaign would be enormous. Most important is to remember that downtown cycling cannot be expected to increase dramatically until the network is complete enough to be truly useful.

Bridges, Drains, and Bike Racks

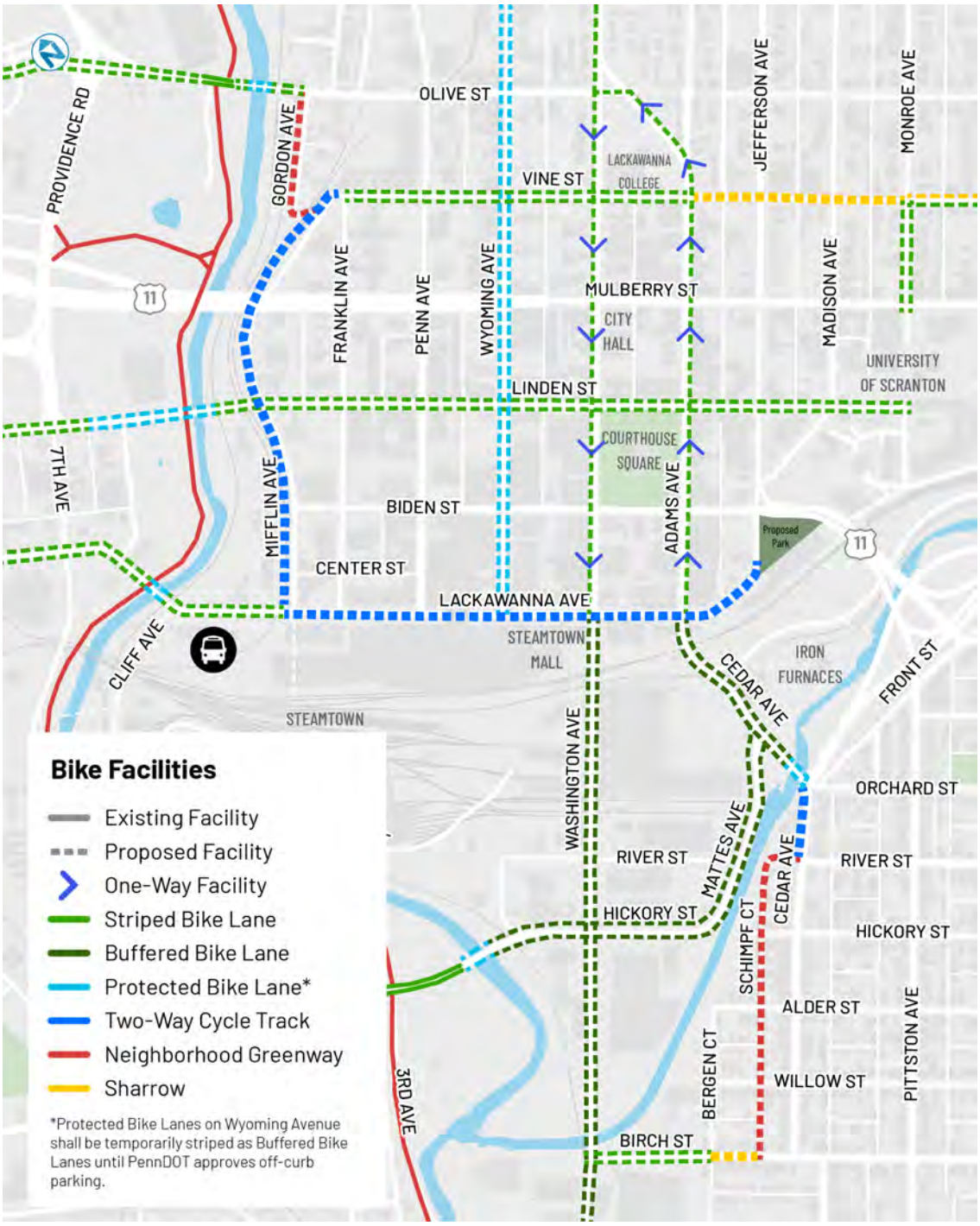
All bridge bike lanes should receive additional protection in the form of Jersey barriers or vertical bollards in the painted buffer that protects the bike lane. Bridges have more street space available that allows for physically protected lanes due to the fact that parking is not allowed on them.

Bike lanes need to skirt grates like these.

One important note about installing any bicycle facilities on the streets of Scranton is to be aware of drainage grates. The wide gaps in some of the drains present a hazard where bike wheels could get stuck and/or damaged. Bike lanes need to provide ample space to pass any such drains.

As bike ridership downtown increases, so will demand for bike parking. This demand will best be met by a combination of individual bike racks throughout the downtown and bike corrals in the areas with the most cycling customers. Because cyclists are reported to be better spenders than drivers—and much safer bar patrons—it will behoove the City to invest in these facilities.

Locating and specifying bike racks and corrals is beyond the scope of this Plan, but bike parking will require considerable attention in the years ahead. Refer to the Association of Pedestrian and Bike Professionals (APBP) bike parking guides for how to site bike racks and guidance on what bike racks to use and which to avoid.



Existing and proposed bike facilities for downtown Scranton

9. Providing Street Trees

Among the hundreds of physical assets that American cities invest in, none is as consistently undervalued as street trees. Street trees reduce urban heat islands and fight climate change; they absorb stormwater and clean our air; they provide wildlife habitat and sustain the food web; they improve student performance and reduce crime; they increase revenues to sidewalk-facing businesses, raise property values, and lower heating and cooling costs; they shape public spaces and make them comfortable. And when it comes to street safety, they reduce the danger to all street users—drivers as well as pedestrians.

Trees For Safety

This suggestion seems counterintuitive. Trees along the street edge would seem to invite people to crash into them, and that is indeed the case on highways, where driver speed is principally a function of posted speed limits. In urban environments, however, where speed is determined by environmental cues, street trees save lives. One Toronto study found that the presence of street trees and other vertical objects along the street edge correlated with a 5 to 20 percent decline in mid-block crashes. Another, along Orlando's Colonial Drive, found that, compared to tree-lined blocks, those with no trees experienced 45% more injurious crashes and many more fatal crashes: six vs. zero.

Fear of car crashes has historically steered engineers away from planting street trees. New evidence shows that the presence of trees improves safety.

By visually narrowing the roadway, trees cause drivers to proceed more cautiously. They also contribute to a more relaxing trip, which may reduce road rage. A study led by the traffic engineer Walter Kulash found that a drive on a treeless street is perceived to be significantly longer than an equal-length drive on a street lined by trees.

And the impact of street trees on walking is likely even greater than on driving. Mature street trees form a sturdy barrier between moving vehicles and pedestrians. When viewed in perspective, a row of trees can feel like a natural wall between the sidewalk and the street, putting pedestrians at ease.

Protecting Current Supply

The City of Scranton would seem to value its trees, both in terms of replacing dead and dying trees and planting available sites. It has been less successful in influencing the actions of other parties. Most noticeable has been at the perimeter of Courthouse Square where the County has rebuilt key sidewalks without trees, diminishing the quality and comfort of Scranton's most important public space. Remarkably, those treeless sidewalks sit atop structural soil, specially built to support large street trees. The City should make a formal request to the County to place trees back in these sidewalks at the first opportunity. Without a perimeter of trees, an urban square is truly only a square in the geometric sense.

Establishing A Standard

Of perhaps greater concern is that, unlike other cities, Scranton does not currently enforce a municipal standard requiring street trees as a standard component of all streets that are created or rebuilt. Public works needs to establish both a policy and a practice that insists that regularly spaced street trees are not optional. Such an approach would implement current best practices in tree selection and placement, including the following:

Structural soil and pervious top: The conventional tree-pit is designed for failure. The proper foundation for an urban street tree is a continuous trench of structural soil—an engineered, root-friendly, load-bearing substrate of crushed stone and soil—that should sit beneath the entire sidewalk to a depth of at least 2 feet. This trench is well drained underneath and topped with a pavement that, at least within the tree-zone, allows ample infiltration. Pavements built on structural soil cost more, but they allow trees to thrive without creating the sort of root heaves that create accessibility failures and demand expensive replacement. In particularly important locations, Silva Cells represent an even more effective upgrade to structural soil, providing premium tree health, but at a higher price.

The right tree: Given their potential health and environmental impacts, street trees, even in shopping districts, should be selected for their capacity to grow large and hefty. In tight circumstances, taller and narrower, but still substantial, species should be chosen. Smaller flowering trees can be used to create a special experience on a unique street but should remain an exception to the rule.

Be consistent: The best streets develop a unique character by containing the same tree planted consistently down their full length. While fear of blights like Dutch Elm Disease has led some cities away from this approach, the risk can be averted by maintaining diversity at a citywide level. As explained by Frank Santamour of the National Arboretum, "genetic diversity is achieved through mixtures of uniformity. . . strips or blocks of uniformity should be scattered through the city."

Proper spacing: The objective with street trees is to achieve "arboring:" canopies that touch at maturity. This means ideally planting the tree at an on-center spacing distance no greater than its anticipated diameter. Tighter spacing works just fine, and even the broadest trees can be happily planted 40 feet apart; any further is not adequate to line a street. The proper spacing for most urban trees is 30 feet on-center. Narrower species chosen due to a tight fit can be planted as closely as twenty feet on-center, budget permitting. One tree per parking space is a nice solution along a main street. Spacing should be as consistent as possible to create a legible rhythm.

While narrow, these sidewalks at the University of Scranton provide an ideal streetscape model.

Line them up: While not essential, aligning trees on both sides of the street contributes markedly to the quality of place, as it helps arboring to occur over the roadway. When three or more rows of trees are used, as with a median, alignment becomes even more impactful. In tighter circumstances, an aligned diagonal stagger can be a good solution. The challenge is to design each street's tree cover in a way that imparts the greatest degree of rhythm and order to the street space.

Build to the corner: When designing a block with street trees, the trees closest to the corners should be located about 10 feet from the crosswalk edge. City codes that push them further away from intersections need to modify their sight-triangle requirements.

No medians without trees: A median with regularly spaced street trees contributes markedly to a street's safety, comfort, and beauty. A median without trees makes a street look and function like a highway. This fact can be observed on the eastern end of Lackawanna Avenue, where a paved median contributes a car-dominated character to the roadway.

An excellent model: East of Jefferson Avenue, the University of Scranton has rebuilt the sidewalks flanking Mulberry Street to an exceptionally high standard, in which sycamore trees sit in planting beds separated by pervious pavers along the curb. This technique, in which a continuously pervious "furnishing zone" separates the sidewalk clear zone from traffic would ideally be applied whenever a new sidewalk is built downtown. The furnishing zone is also the proper location for lights, bike racks, trash receptacles, benches, and other vertical objects.

PART II:
STREET RECONFIGURATIONS

LACKAWANNA AVENUE (Downtown, East-West)

Lackawanna Avenue is a four-lane two-way street that travels along the southern border of the downtown. The site of many pedestrian crashes, it holds more lanes than its traffic demands, resulting in inconsistent curb parking. A highway-style treeless median to its east further encourages higher speeds.

View east between Wyoming and North Washington Avenues

The challenges and great opportunity along this corridor suggest a complete rebuild from Mifflin Avenue to Biden Street. This would include a protected cycle track on the southern sidewalk, additional sidewalk trees, consistent parking, and a continuous cobblestone median to include trees wherever no center turn lane is needed.

Lackawanna Avenue's daily traffic volumes are: 4,000 vehicles from Mifflin to Adams Avenue; and 8,000 vehicles from Adams Avenue to the entrance of the Biden Expressway. These volumes suggest that turn lanes are not necessary.

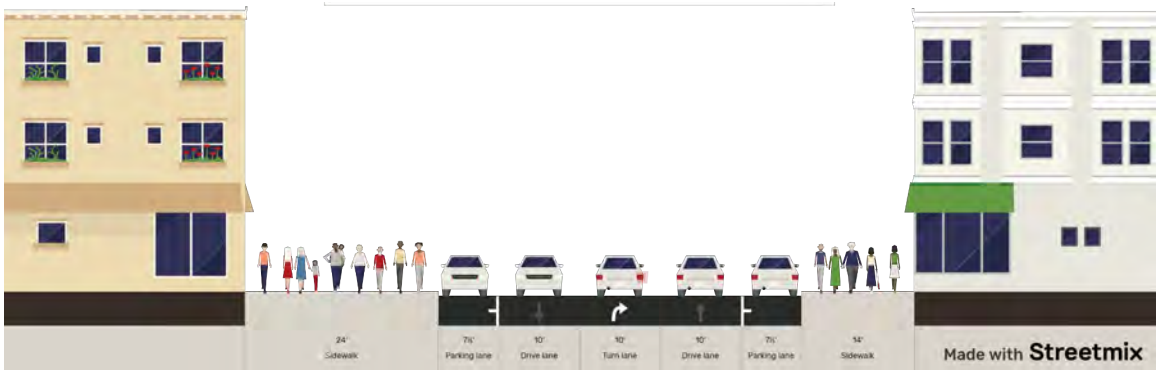
Recommendations are as follows:

- From Mifflin to Adams Avenues, rebuild with the following dimensions:
  - Sidewalks: 24-foot sidewalks changed to 14-foot sidewalks with consistent street trees between walking zone and adjacent cycle track
  - Bike facility: two adjacent 5-foot bike lanes (cycle track) on the southern sidewalk, continuing to the Radisson Hotel
  - Bike lane buffers: 2-foot cobblestone bike buffer between the sidewalk-level cycle track and curb
  - Parking: two 7.5-foot lanes

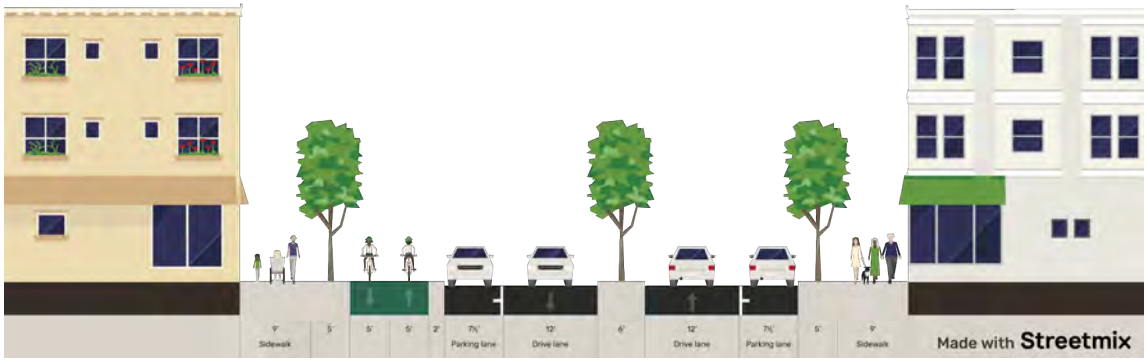
- Travel lanes: two 10-foot travel lanes and one 10-foot turn lane changed to two 12-foot travel lanes against cobble median
- Continuous 6-foot cobblestone median with trees placed at center. Trees planted consistently except where short center turn lane may be needed.
- In areas where the right-of-way expands beyond 85 feet, expand the width of the bike buffer. Once the buffer reaches 5 feet in width, it should contain continuous street trees staggered among the adjacent sidewalk trees.
- West of Mifflin, stripe bike lanes on each side of the street, reaching over the Lackawanna River (bikes can cross at the proposed all-way stop at Mifflin), with low Jersey Barriers or other protection against high-speed traffic on the bridge.

LACKAWANNA AVENUE *(Downtown, East-West)*

Existing, Typical (Looking West)



Proposed, Typical (Looking West)



Note: Cobblestone median is not raised.

BIDEN STREET (Downtown, East-West)

View east between Wyoming Avenue and North Washington Avenue

Biden Street, formerly Spruce Street, is a two-lane street that runs one-way westbound except for a two-way segment between Mifflin and Franklin Avenue. It is State-owned between Wyoming and Jefferson Avenues.

Because of its role as a Biden Expressway off-ramp, it moves slightly more traffic in its eastern segments, carrying up to 5,000 vehicles a day between Penn and Jefferson Avenues. Between Penn and Mifflin Avenues, the street carries fewer than 1,000 vehicles per day.

Biden and Linden Streets are the principal east-west one-way pair that is recommended for reversion to two-way traffic, a change that can be expected to vastly improve downtown safety and vitality.

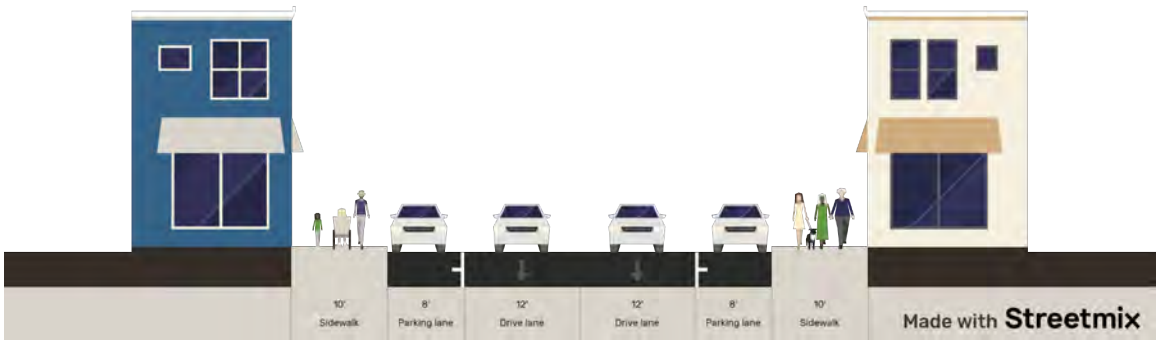
Biden Street's condition does not currently honor its namesake. Aside from Lackawanna Avenue and one block of Penn Avenue, it is the only street recommended for a rebuild in this Plan. In addition to being largely reverted to two-way traffic, its travel lanes should be narrowed to the 10-foot standard as it is rebuilt based on the Mulberry Street streetscape by the University of Scranton.

Recommendations are as follows:

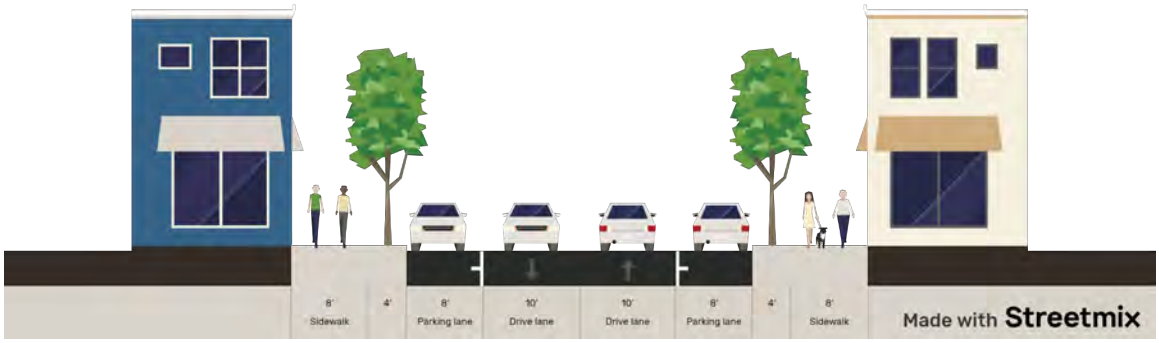
- Revert traffic from one-way to two-way between Adams Avenue and Franklin Avenue. One-way travel remains between Jefferson and Adams Avenues to simplify the exit from the expressway. Do not stripe centerlines except to indicate two-way travel at intersection approaches.
- Narrow the travel lanes and widen the sidewalks, resulting in the following street dimension changes:
  - Sidewalks: 10-foot sidewalks changed to 12-foot sidewalks
  - Travel lanes: 12-foot lanes changed to 10-foot lanes
  - Parking: two 8-foot lanes (unchanged)
- Include street trees on both flanks (within widened sidewalks).
- Make parking free between Mifflin and Franklin Avenues by bagging meters in the interim and removing them within a year.

BIDEN STREET (Downtown, East-West)

Existing, Typical (Looking East)



Proposed, Typical (Looking East)



LINDEN STREET (Downtown, East-West)

View east from Penn Avenue to Wyoming Avenue

Linden Street is one-way eastbound between Penn Ave and Jefferson Avenue and is otherwise two-way. It is two lanes wide except for additional turn lanes approaching Wyoming and Washington Avenues. It is State-owned west of Adams Avenue.

Linden Street's daily traffic volumes are: 6,000-7,000 vehicles where it crosses the Lackawanna River; roughly 3,500 between Wyoming and Adams Avenues; and fewer than 1,000 vehicles east of Adams Avenue. These volumes do not warrant any turn lanes.

Linden and Biden Streets are the principal east-west one-way pair that is recommended for reversion to two-way traffic, a change that can be expected to vastly improve downtown safety and vitality.

Linden Street's lanes are currently too wide, and the street is well positioned to become the downtown's central east-west cycling corridor, which can be achieved at the sacrifice of one flank of parking. This significant loss of parking is balanced out by additional parking being added or made more available on other nearby streets.

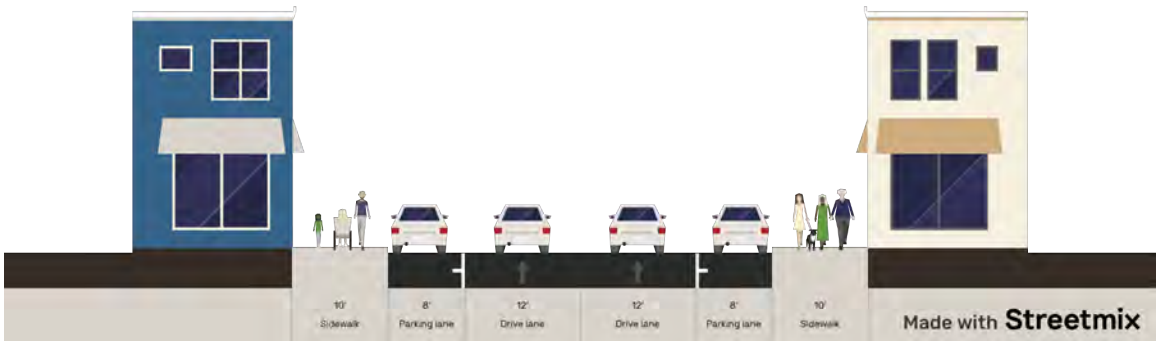
Recommendations are as follows:

- Revert traffic from one-way to two-way throughout downtown. Do not stripe centerlines except to indicate two-way travel at intersection approaches.
- Eliminate all turn lanes.
- Stripe bike lanes on both flanks between Mifflin and Jefferson Avenues, resulting in the following street dimension changes:
  - Travel lanes: two 12-foot lanes changed to two 10-foot lanes without a centerline
  - Bike facility: Add a 5-foot bike lane on each flank of the street
  - Parking lanes: Maintain 8-foot lane on the north flank. Eliminate south flank parking between Mifflin and Jefferson Avenues
  - West of Mifflin, stripe buffered bike lanes beyond the study area. These should receive low Jersey Barriers or other protection against high-speed traffic on the bridge and beyond.
- Replace parking zones eliminated by former turn lanes and by the "No Parking" zone on the north flank of the street east of Jefferson Avenue.

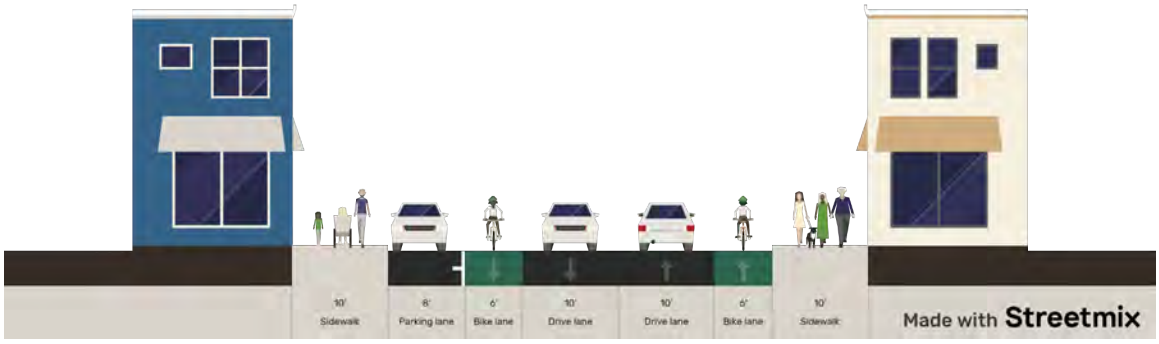
- Paint a diagonal crosswalk at the Linden Street/Jefferson Avenue pedestrian scramble.
- Make parking free from Mifflin to Franklin Avenues by bagging meters in the interim and removing them within a year.

LINDEN STREET *(Downtown, East-West)*

Existing, Typical (Looking East)



Proposed, Typical (Looking East)



MULBERRY STREET (Downtown, East-West)

Mulberry Street is a two-way six-lane high-volume State-owned expressway which becomes four lanes from Wyoming Avenue to Adams Avenue, and then narrows to two lanes after Adams Avenue, with various turn lanes and turn pockets throughout its length.

View west between Franklin and Penn Avenues

Mulberry Street's daily traffic volumes are: 19,000-21,000 vehicles between Mifflin and Jefferson Avenues; and 8,000-9,000 vehicles between Jefferson and Monroe Avenues.

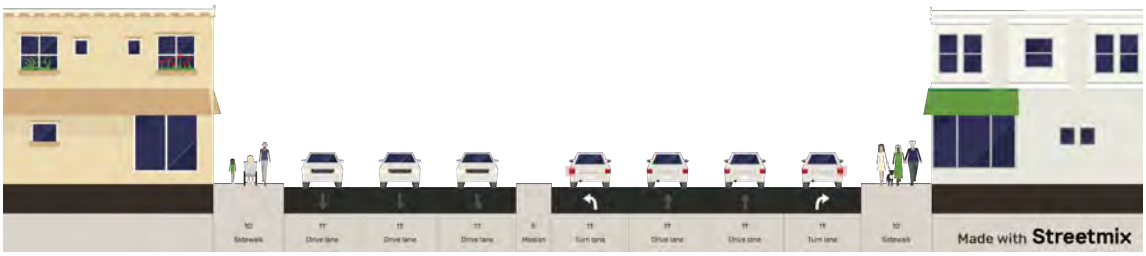
As the principal State-owned axis through downtown, Mulberry Street will remain a workhorse for moving traffic. However, as indicated in Part I, there are several locations where the supply of lanes exceeds the amount needed to satisfy peak traffic demand.

Recommendations are as follows:

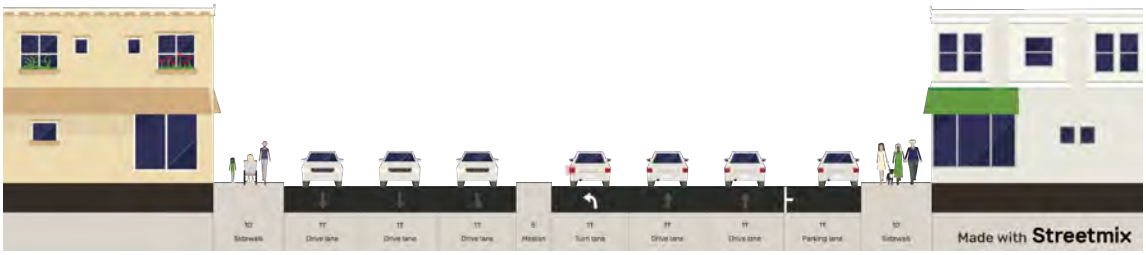
- Remove right-hand turn lanes approaching Franklin and Penn Avenues, replacing them with missing curb parking.
- Make parking free between Mifflin and Wyoming Avenues by bagging meters in the interim and removing them within a year.

MULBERRY STREET *(Downtown, East-West)*

Existing, Approaching Penn and Franklin Avenues



Proposed, Approaching Penn and Franklin Avenues



VINE STREET (Downtown, East-West)

Vine Street is a two-lane, two-way street, with turn lanes at its intersection with Penn Avenue.

Vine Street's daily traffic volumes are 300 vehicles, making turn lanes unnecessary.

Vine Street is the principal east-west cycling route across the north side of downtown, and east up the hill to Nay Aug Park.

View east between Franklin and Penn Avenues

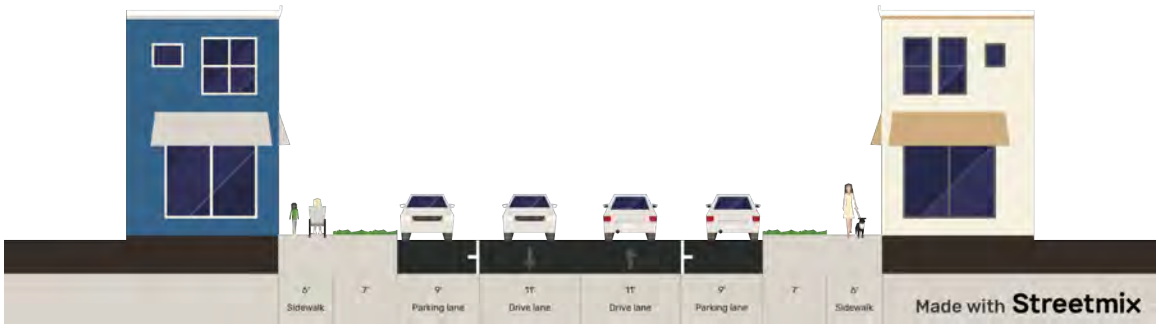
Available space for bike facilities varies, resulting in several recommended configurations from east to west.

Recommendations are as follows:

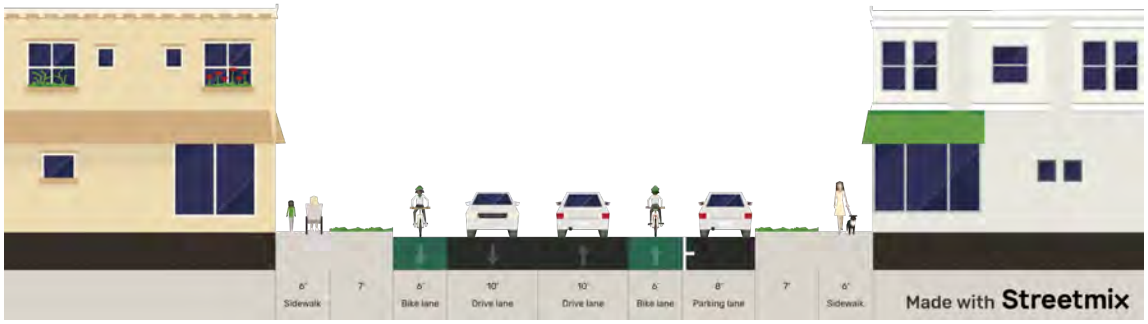
- Between Franklin and Adams Avenues, stripe bike lanes on both flanks resulting in the following street dimension changes:
  - Travel lanes: two 11-foot lanes changed to two 10-foot lanes, without a centerline
  - Bike facility: A 6-foot bike lane on each flank of the street
  - Parking: 8-foot lane: Maintain on the south side throughout; eliminate on north side between Franklin and Adams Avenues.
- From Adams to Monroe Avenues, paint bike sharrows
- East of Monroe Avenue, paint bike sharrows in the downhill direction (west) and stripe a 5-foot bike lane heading east in the uphill direction east of Monroe Avenue
- Eliminate all centerlines.
- Make parking free between Franklin and Wyoming Avenues by bagging meters in the interim and removing meters within a year.

VINE STREET *(Downtown, East-West)*

Existing, Between Wyoming and N Washington (Looking East)



Proposed, Between Wyoming and N Washington (Looking East)



OLIVE STREET (Downtown, East-West)

Olive Street is a two-lane, mostly two-way thoroughfare that once passed fully through downtown Scranton but is now split in two as a result of an urban renewal scheme between North Washington Avenue and Kessler Court. This change resulted in one westbound-only segment where it carries northbound Adams Avenue into N. Washington Ave.

View west between Monroe and Madison Avenues

Its daily traffic volume is 6,000-7,000 vehicles on its western half, lighter on its eastern half.

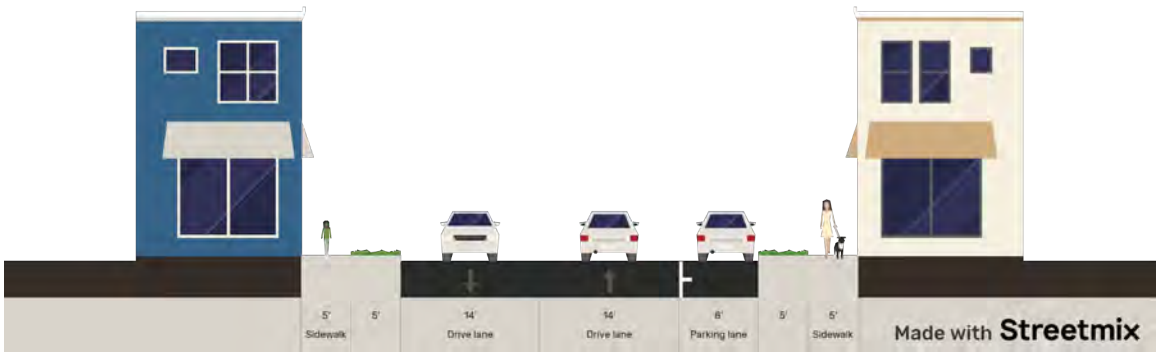
No parking is allowed on its northern flank west of Wyoming Avenue, resulting in over-wide driving lanes and sidewalk parking. Futher west, as a principal route to the High School, Olive Street should receive bike lanes on both flanks west of Gordon Avenue, even though this narrows driving lanes slightly in locations.

Recommendations are as follows:

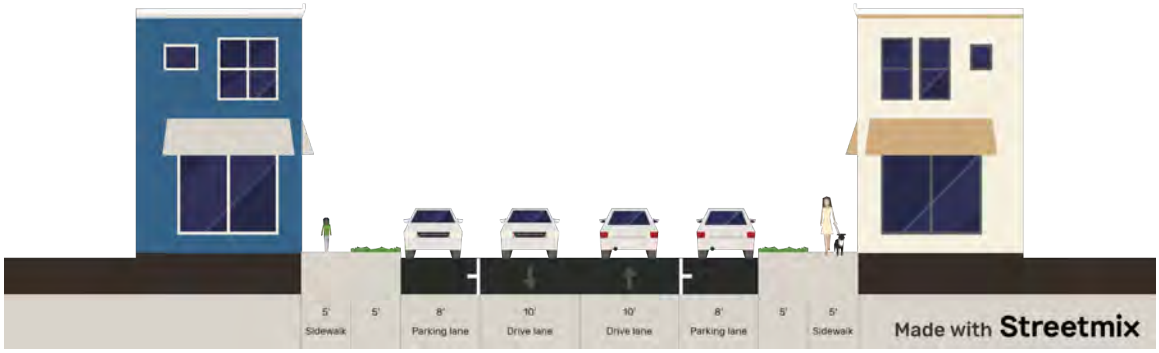
- Add parking to the south side of the street east of Penn Avenue to narrow the travel lanes, resulting in the following street dimension changes:
  - Travel lanes: two 14-foot lanes change to two 10-foot lanes.
  - Parking: one 8-foot lane changed to two 8-foot lanes
- Add bike lanes to both flanks from Gordon Avenue to the High School. Understanding that large vehicles can sidle into the bike lane when another large vehicle approaches, allow the roadway to narrow to maintain a 4-foot-minimum bike lane width. At its narrowest, the configuration would be two 9-foot lanes flanked by two 4-foot bike lanes.
- Revert the one-way segment between North Washington and Adams Avenues to two-way, widening it to 20 feet. Close the segment of Adams Avenue that forks into N. Washington, creating a small park there.
- Eliminate all centerlines.

OLIVE STREET *(Downtown, East-West)*

Existing, Penn to Wyoming (Looking East)



Proposed, Penn to Wyoming (Looking East)



MIFFLIN AVENUE (Downtown, North-South)

Mifflin Avenue is a mostly-two-lane two-way street that runs along the upper elevation of the Lackawanna River embankment.

Mifflin Avenue's daily traffic volumes are 300 vehicles, exceptionally light.

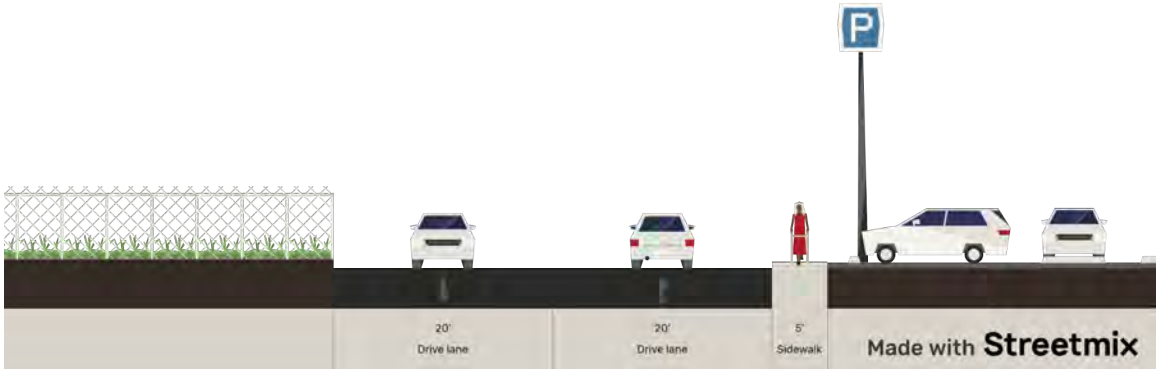
View north from Lackawanna Avenue

Recommendations are as follows:

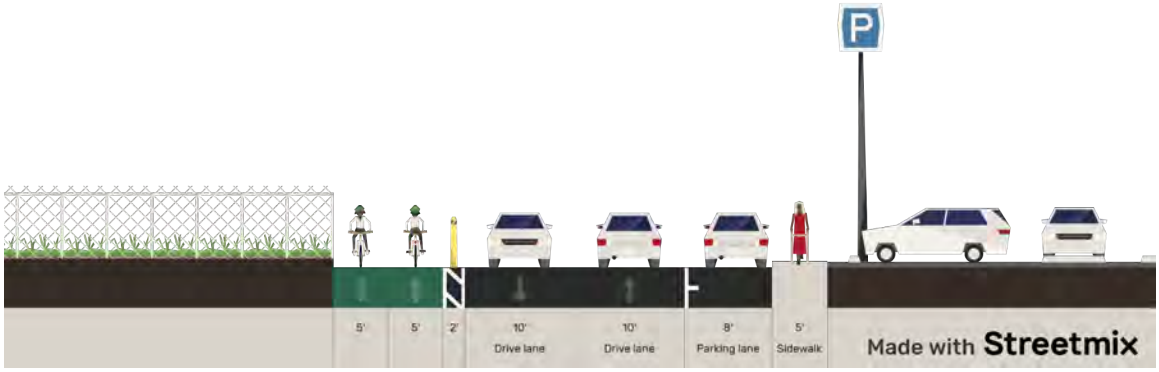
- Add a two-way buffered cycle track and parking to the opposite side of the street, resulting in the following street dimension changes:
  - Travel lanes: two 20-foot lanes changed to two 10-foot lanes without a centerline
  - Bike facility: two 5-foot bike lanes to create a cycle track on the embankment side of the street
  - Bike lane buffers: 2-foot bike lane buffers between the cycle track and the travel lane, including bollards to protect cycle track
  - Parking: one 8-foot lane opposite the cycle track
  - Once PennDOT approves off-curb parking: add an additional parking lane near Vine Street where width allows to protect the cycle track
- Until the crossing of Mulberry can be improved with shortened crossings, added crosswalks, and a walk signal, only develop the buffered cycle track from Lackawanna to Linden. Once Mulberry can receive signal and intersection upgrades, develop the bike facility north to Vine.
- Eliminate all turn lanes and centerlines.
- Make parking free along the whole street by bagging meters in the interim and removing them within a year.

MIFFLIN AVENUE *(Downtown, North-South)*

Existing, Typical (Looking North)



Proposed, Typical (Looking North)



FRANKLIN AVENUE (Downtown, North-South)

Franklin Avenue is a two- to three-lane two-way street, except between Mulberry and Vine Streets, where it is a northbound one-lane one-way.

Recommendations for Franklin Avenue include eliminating turn lanes, replacing missing parking, and widening existing parking lanes to narrow overwide driving lanes.

View north from Lackawanna Avenue

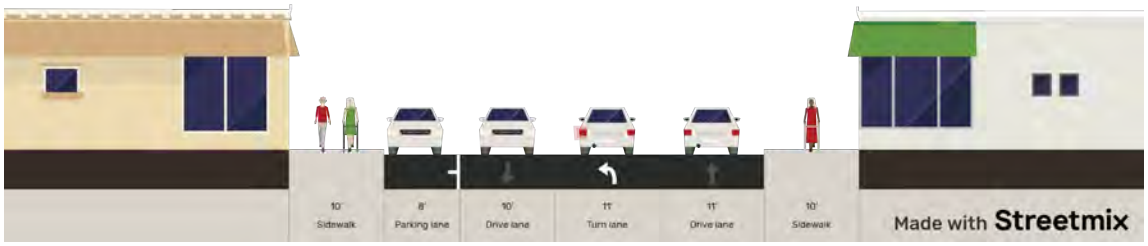
Franklin Avenue's daily traffic volumes are 300 vehicles, a fraction of the more than 10,000 daily vehicles that would justify the presence of turn lanes.

Recommendations are as follows:

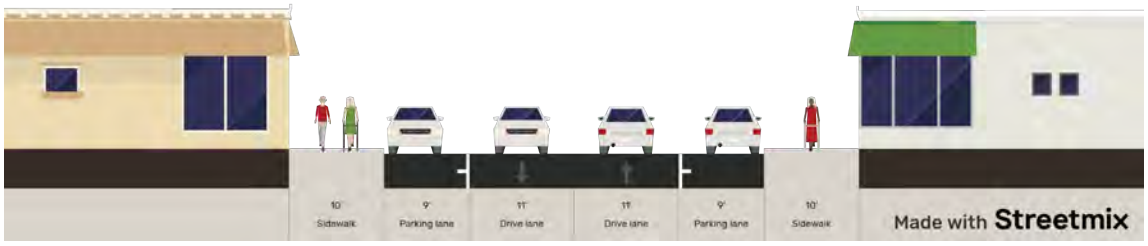
- Remove turn lane on the blocks south of Mulberry Street to bring missing parking back to the east curb.
- Narrow the travel lanes to widen the parking lanes, resulting in the following street dimension changes:
  - Travel lanes: 12-foot lanes changed to 11-foot lanes
  - Parking: 8-foot lanes changed to 9-foot lanes
- Eliminate all centerlines.
- Make parking free along the whole street by bagging meters in the interim and removing them within a year.
- Preserve the one-way segment north of Mulberry Street, due to light pedestrian demand and difficulty of adding signal heads at Mulberry.

FRANKLIN AVENUE *(Downtown, North-South)*

Existing, South of Mulberry Street (Looking North)



Proposed, South of Mulberry Street (Looking North)



PENN AVENUE (Downtown, North-South)

View north from Lackawanna Avenue

Penn Avenue is a one-lane one-way street heading south between Mulberry Street and Lackawanna Avenue, and a two- to three-lane, two-way street north of Mulberry Street. South of Mulberry, it has 45-degree angled parking on the eastern curb. North of Mulberry, it loses a flank of parking to turn lanes approaching both Mulberry and Vine Streets. Its lanes in this area are excessively wide.

Penn Avenue's daily traffic volumes are around 1,500 vehicles, well below the more than 10,000 daily vehicles that would justify the presence of turn lanes.

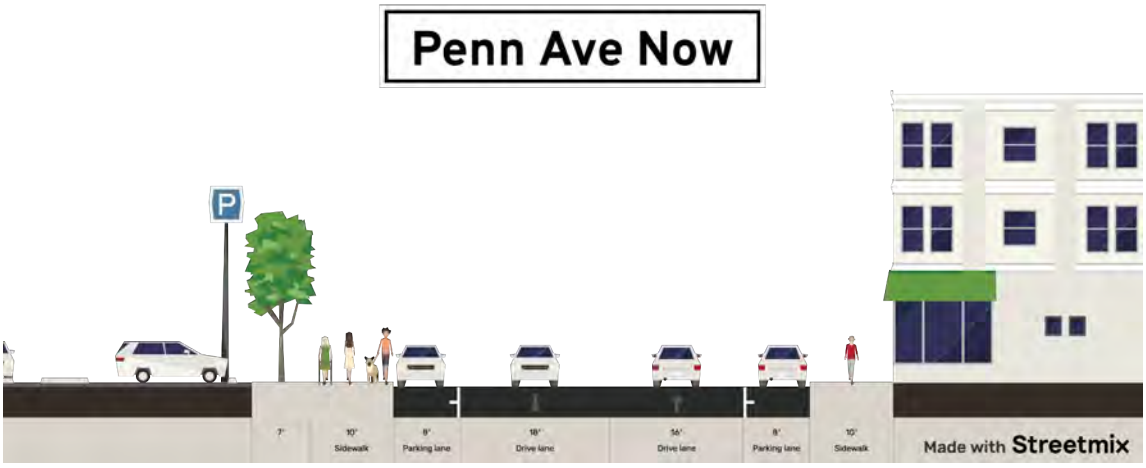
As discussed in Part III, Penn Avenue north of Mulberry Street presents a tremendous opportunity to create a monumental approach to the popular tourist attraction of the Penn Paper building. As a final recommendation for new construction in this street plan, it is suggested that this one block of street be narrowed, and the west curb expanded by 14 feet to hold additional street trees and potential statuary.

Recommendations are as follows:

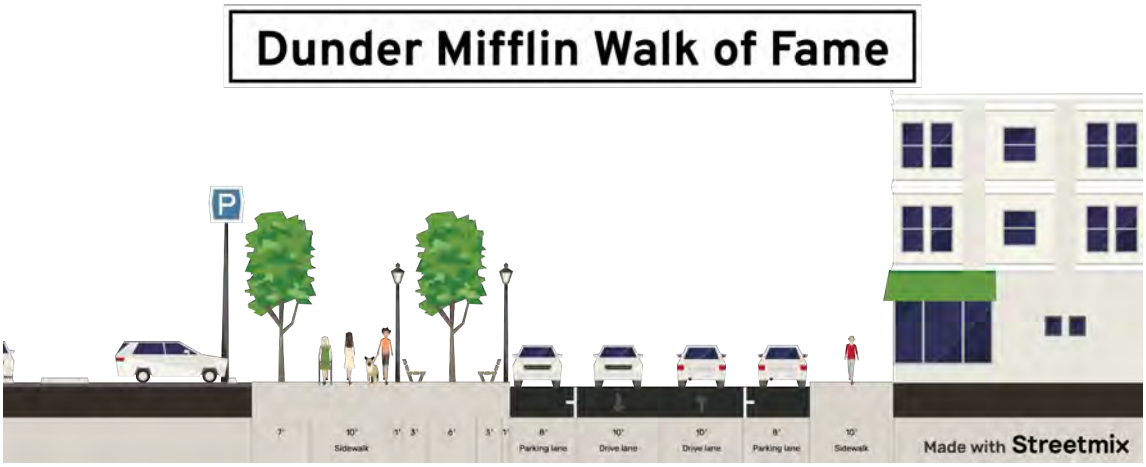
- Remove turn lanes approaching Monroe Avenue from the north and approaching Vine Street from the north and south to bring missing parking back to the curbs.
- For the block between Mulberry and Vine Streets, further narrow the driving lanes to the standard 10-foot width to create a 36-foot-wide roadway alongside a western sidewalk that has been expanded to include a new continuous row of trees.
- Eliminate all centerlines.
- Make parking free between Mulberry and Vine Streets by bagging meters in the interim and removing them within a year.
- Preserve the existing configuration from Mulberry Street to Lackawanna Avenue to maintain angled parking.

PENN AVENUE *(Downtown, North-South)*

Existing, between Mulberry and Vine (Looking North)



Proposed, between Mulberry and Vine (Looking North)



This proposal, discussed more fully in Section III, narrows Penn Avenue to create a linear park approaching the Penn Paper building.

WYOMING AVENUE (Downtown, North-South)

View north from Lackawanna Avenue

Wyoming Avenue is a four-lane two-way street. It is State-owned north of Biden Street. It contains narrow parking lanes on both curbs along most of its length, interrupted by periodic bus stops.

Wyoming Avenue's west-central location and excess travel lanes make it the ideal location for a north-south cycling corridor. In most states, such a facility would take the form of curbside lanes protected by parallel parking. As discussed in Part I, however, the odd interpretation of state law by PennDOT forbids this configuration, so the bike lanes must instead be placed, for now, in between parked cars and traffic, where they can thankfully be wide enough to provide buffers against "doorings."

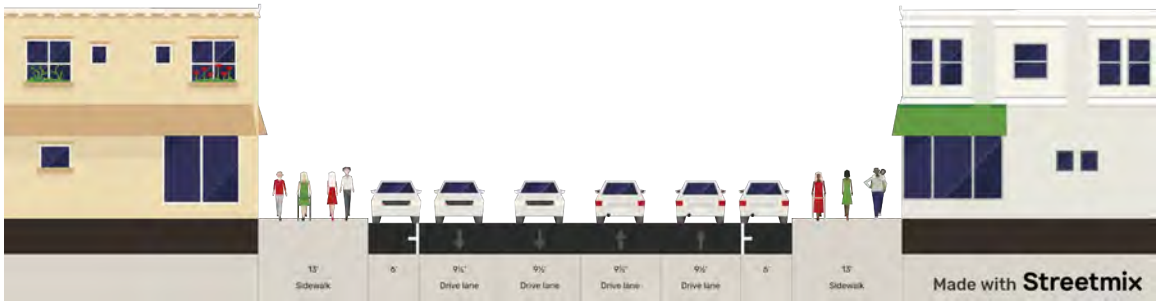
Wyoming Avenue's daily traffic volumes are: roughly 300 vehicles from Lackawanna Avenue to Biden Street; 6,000-7,000 between Biden Street and Mulberry Street; and just over 10,000 vehicles north of Mulberry Street. These volumes allow a reduction from four lanes to two lanes of travel but may cause PennDOT to demand occasional short left-turn lanes on the northern segments. These can be created by eliminating one flank of parking for a short stretch before the intersection.

Recommendations are as follows:

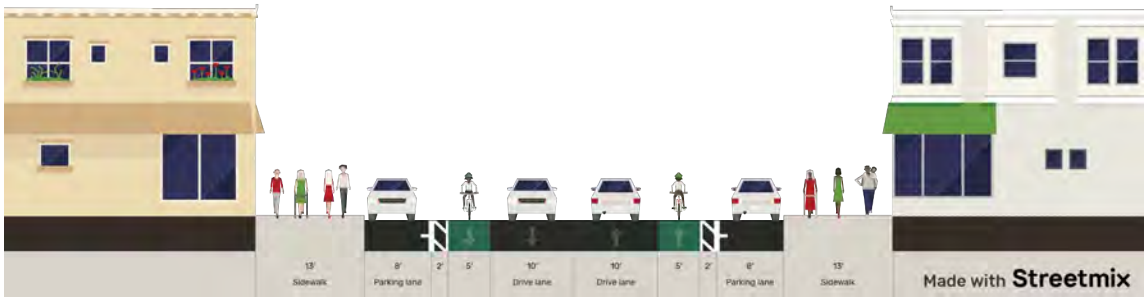
- Restripe driving lanes to 10 feet and parking lanes to 7 feet. Insert 5-foot bike lanes and 3-foot buffers between bikes and parking.
  - Interim: Stripe buffered bike lanes between the travel lanes and the parking lanes.
  - After PennDOT policy change: Relocate bike facilities along each curb, protected by parking.
- At any intersection approach where PennDOT demands a left-turn lane, eliminate one flank of parking and the corresponding bike buffer to make room for a 10-foot center lane of limited length.
- Eliminate centerlines except where center turn lanes are present.
- Make parking free between Mulberry and Olive Streets by bagging meters in the interim and removing them within a year.

WYOMING AVENUE *(Downtown, North-South)*

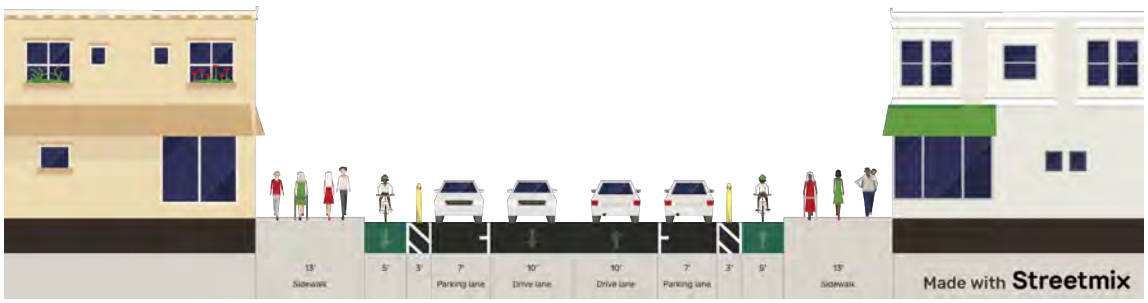
Existing, Typical (Looking North)



Proposed - Interim, Typical (Looking North)



Proposed – Post-Policy Update, Typical (Looking North)



NORTH WASHINGTON AVENUE *(Downtown, North-South)*

View south between Linden Street and Biden Street, adjacent to Courthouse Square

North Washington Avenue is a southbound two-lane, one-way street. The street continues two-way south of Lackawanna Avenue as South Washington Avenue. North Washington contains curb parking on both flanks for most of its length.

North Washington and Adams Avenues are the principal north-south one-way pair that is recommended for reversion to two-way traffic, a change that can be expected to vastly improve downtown safety and vitality.

North Washington Avenue's daily traffic volumes are close to 10,000.

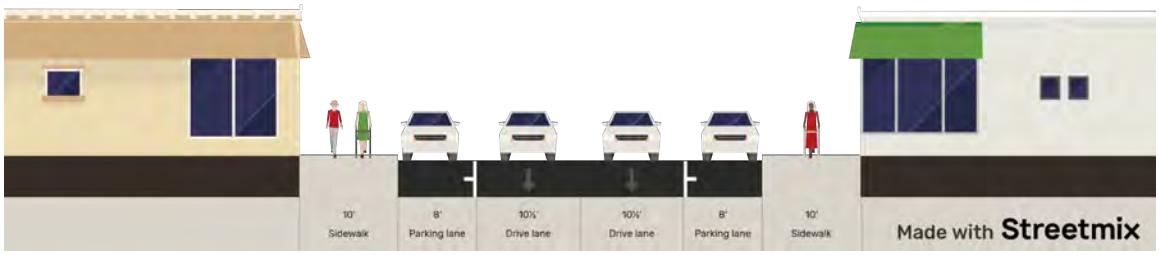
North Washington Avenue's lanes are currently too wide, but only by a few feet, so it is able to add a single bike lane but not two. This led to the decision to split the north-south cycling facility in east-central downtown between N. Washington and Adams Avenues, with N. Washington handling southbound cycling only. The resulting layout is able to include bike lanes by narrowing driving lanes to 9 feet and parking lanes to 7 feet, which is tighter than standard. This will reduce speeding but not cause pinch points, because the bike lane will be available for large vehicles to swing out of each others' way when needed.

Recommendations are as follows:

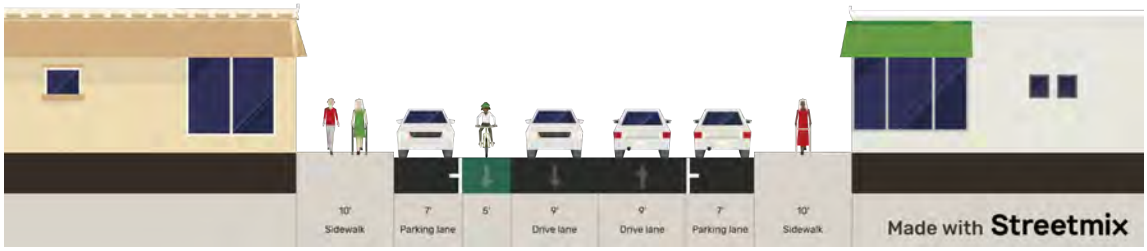
- Revert traffic from one-way to two-way throughout downtown. Do not stripe centerlines except to indicate two-way travel at intersection approaches.
- Remove any turn lanes to bring back missing curb parking.
- Narrow the travel lanes to add a southbound bike lane, resulting in the following street dimension changes:
  - Travel lanes: 10.5-foot lanes changed to 9-foot lanes
  - Bike facility: one 5-foot southbound bike lane
  - Parking: two 8-foot lanes changed to two 7-foot lanes.

NORTH WASHINGTON AVENUE *(Downtown, North-South)*

Existing, Typical (Looking North)



Proposed, Typical (Looking North)



ADAMS AVENUE (Downtown, North-South)

Adams Avenue is a northbound two-lane one-way State-owned street that contains curb parking on both flanks for most of its length.

Adams and North Washington Avenues are the principal north-south one-way pair that is recommended for reversion to two-way traffic, a change that can be expected to vastly improve downtown safety and vitality.

View south between Mulberry Street and Linden Street

Adams Avenue's daily traffic volumes are 3,000-4,500 vehicles, and it contains occasional additional turn lanes that are not justified by traffic.

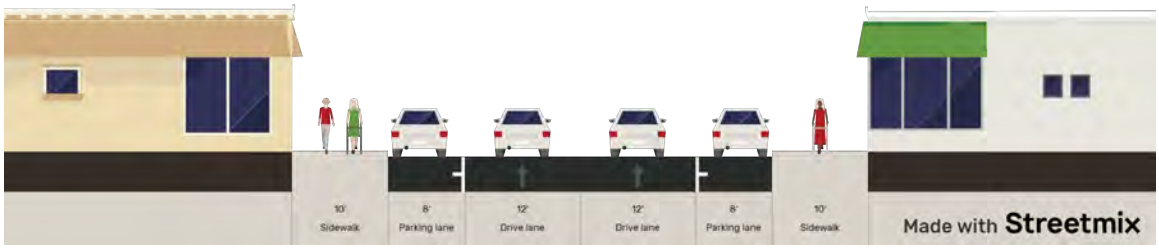
Adams Avenue's lanes are currently too wide, but only by a few feet, so it is able to add a single bike lane but not two. This led to the decision to split the north-south cycling facility in east-central downtown between North Washington and Adams and North Washington Avenues, with Adams handling northbound cycling only. The resulting layout is able to include bike lanes by narrowing driving lanes to 9.5 feet, which is slightly tighter than standard. This will reduce speeding but not cause pinch points, because the bike lane will be available for large vehicles to swing out of each others' way when needed. Adams Avenue forks west to join with North Washington Avenue above Vine Street, ultimately connecting to it via Olive Street, where the dangerous final segment forking into North Washington should be closed.

Recommendations are as follows:

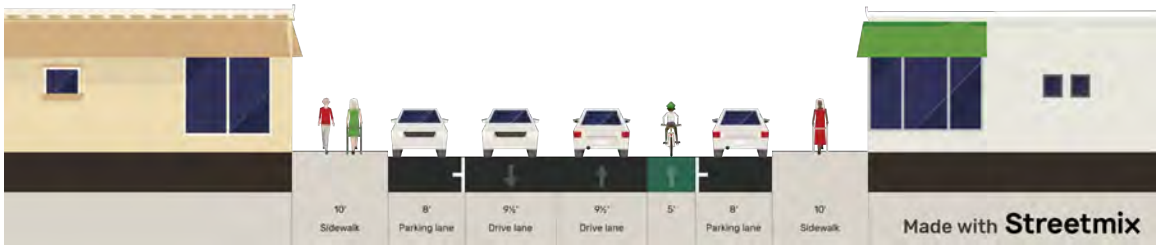
- Revert traffic from one-way to two-way throughout downtown. Do not stripe centerlines except to indicate two-way travel at intersection approaches.
- Narrow the travel lanes to add a northbound bike lane, resulting in the following street dimension changes from Lackawanna Avenue to Olive Street:
  - Travel lanes: two 12-foot lanes changed to two 9.5-foot lanes
  - Bike facility: 5-foot northbound bike lane
  - Parking: two 8-foot lanes (unchanged)
- Close the final 150-foot-ling segment of Adams Street that forks into N. Washington, creating a small park there. Trips here should use safer Olive Street instead.

ADAMS AVENUE *(Downtown, North-South)*

Existing, Typical (Looking North)



Proposed, Typical (Looking North)



JEFFERSON AVENUE (Downtown, North-South)

View south from Mulberry Street

Jefferson Avenue is a two- to four-lane, two-way street. It is State-owned south of Mulberry Street, where it connects Mulberry Street traffic to the Biden Expressway. North of Mulberry, it is a calm two-lane neighborhood street. South of Mulberry, its three wide lanes become four lanes south of Linden Street, in order to maximize flow onto the Expressway. South of the Expressway, it handles a limited amount of travel to the Expressway from Lackawanna Avenue, as well as Jefferson Avenue traffic heading south.

Jefferson Avenue's daily traffic volumes are: around 8,000 vehicles from Lackawanna to the Biden Expressway; and just under 5,000 vehicles north of Mulberry Street. These relatively low numbers are belied by the heavy traffic and rush-hour backups that sometimes occur on the segment between Mulberry and Biden, particularly the queues of southbound traffic waiting to turn left on to the Expressway. While these queues are long and unpleasant for pedestrians, the waits here are not excessive.

The Biden Expressway entrance would clearly benefit from a reconfiguration, but such an effort would be quite expensive and will take years to study. In the short term, the strategy should be to calm traffic by right-sizing lanes and adding parking where possible. PennDOT's ownership of this important road segment complicates the process for modifying it, but a proper restriping would right-size the three travel lanes between Mulberry and Linden to allow one flank of parking (without any reduction in capacity). It would then eliminate one travel lane from the northern half of the segment between Linen and Biden, in front of Leahy Hall, acknowledging that what matters for traffic flow is intersections, not mid-block areas. Removing one lane for half a block here will lengthen queues slightly up Jefferson, but will not make waits any longer—it is simply reshaping car storage awaiting the light. The same would be true of removing two lanes, but dropping just one lane along half a block seems a reasonable request to make to PennDOT.

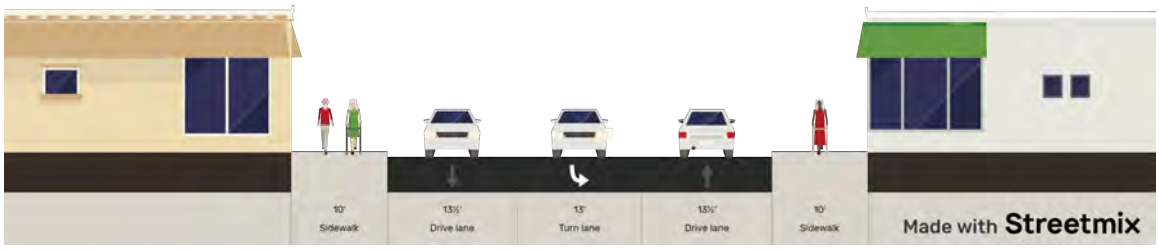
Recommendations are as follows:

- Between Mulberry and Linden, narrow the travel lanes to the proper size to add parking on the west curb, resulting in the following street dimension changes:
  - Travel lanes: three 13 to 13.5-foot lanes changed to three 10.5-foot lanes
  - Parking: one 8.5-foot lane placed on west curb.

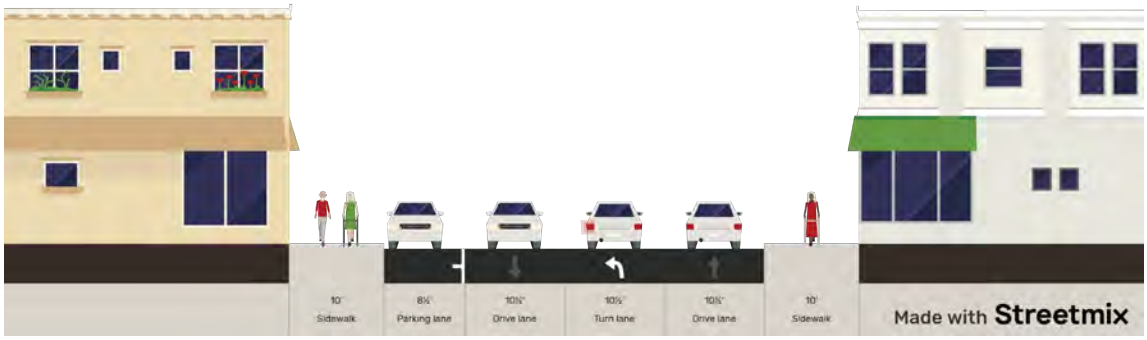
- Between Linden and Biden Streets, eliminate one southbound driving lane to produce the same design as above. If necessary, remove the parking lane at the Expressway approach to maintain the current 4-lane configuration.
- Paint a diagonal crosswalk at the existing pedestrian scramble at the intersection of Linden Street and Jefferson Avenue.
- Remove the dangerous-to-pedestrians slip lane that speeds northbound traffic from the Biden Expressway diagonally on to Madison Avenue at the base of Jefferson. This extra lane should be eliminated from the right flank of the Expressway exit as it approaches Jefferson. The only access onto Madison should be a right angle from Jefferson, meaning that the island at that location needs to be trimmed slightly to allow turns from the south as well as the north.

JEFFERSON AVENUE *(Downtown, North-South)*

Existing, between Mulberry and Linden (Looking North)



Proposed, between Mulberry and Linden (Looking North)



MONROE AVENUE (Downtown, North-South)

View north from Mulberry Street

Monroe Avenue is a southbound one-lane, one-way street that dead-ends at Mulberry Street at the University of Scranton. It is the type of street that, unstriped, typically handles two-way travel in many of America's best residential neighborhoods, bur as a one-way can encourage speeding. For this reason, the block between Vine and Olive should be reverted to two-way travel, with no other changes needed. Indeed, this reversion should extend beyond the study area to reach all the way to E. Gibson Street, where two-way travel currently begins. The same approach would lend safety and real estate value to Clay Avenue as well, and other similar streets throughout Scranton. This type of street, called a "slow street", results in slower driving and more comfort for pedestrians.

The next block south on Monroe, however, between Mulberry and Vine, is a key cycling connector from downtown to the east-west bike facility that reaches to Nay Aug Park on Vine Street. For this reason, it should maintain its current one-way configuration to have room for two bike lanes as well.

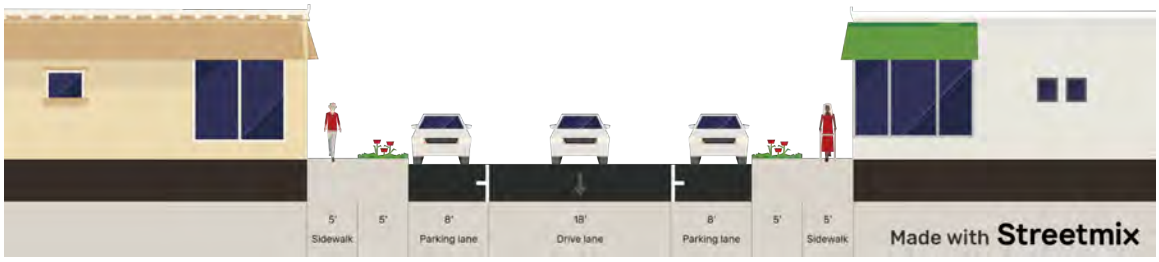
Monroe Avenue's daily traffic volumes are 300 vehicles, appropriate to a "slow street."

Recommendations are as follows:

- Between Mulberry and Vine, narrow the travel lanes to include bike lanes, resulting in the following street dimension changes:
  - Travel lanes: one 18-foot lane changed to one 10-foot lane
  - Bike facility: two 5-foot striped bike lanes
  - Parking: two 8-foot lanes narrowed to two 7-foot lanes
- Revert traffic from one-way to two-way between Vine Street and Olive Street, resulting in the following street dimension changes:
  - Travel lanes: one 18-foot lane changed to two 9-foot lanes without a centerline
  - Parking: Both sides, unmarked and unchanged.
- Eliminate any centerlines.

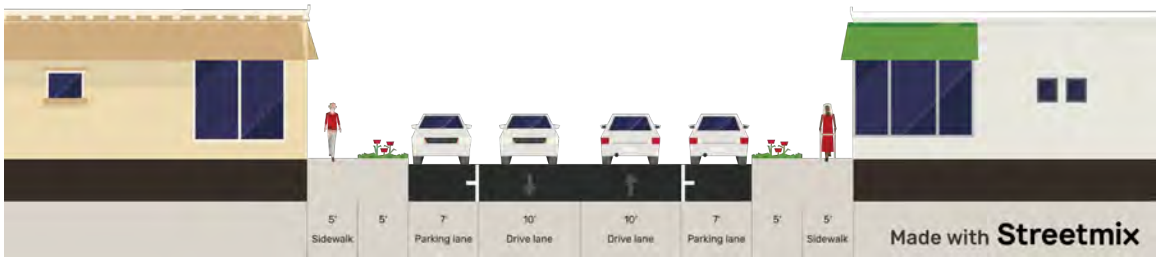
MONROE AVENUE *(Downtown, North-South)*

Existing, Typical (Looking North)



Proposed, between Mulberry & Vine (Looking North)

Proposed, between Vine & Olive Streets (Looking North)



BIRCH STREET (Iron District, East-West)

Birch Street is a two-lane two-way State-owned street in the Iron District.

Birch Street's daily traffic volumes are: 3,000-4,000 vehicles between South Washington Avenue and Pittston Avenue; and fewer than 3,000 vehicles east of Pittston Avenue.

View west between Pittston Avenue and Cedar Avenue

It is the proper width to hold parking on both sides, but this results in excess width between S. Washington Avenue and Bergen Court, where there is no parking demand.

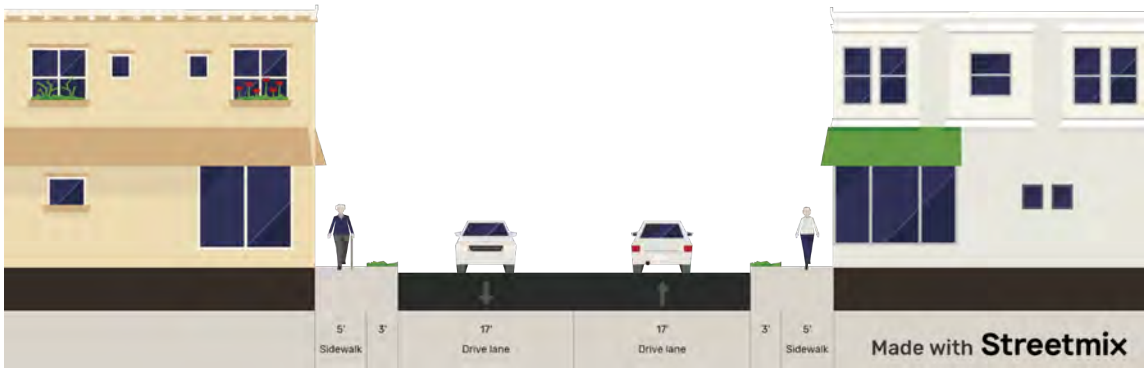
Between S. Washington Avenue and Schimpf way, Birch Street will be an important bicycle route. East of Schimpf Court, it is more important as a pedestrian corridor. It suffers here as Cedar Avenue drivers jockey east-west along Birch Street in a location where crosswalks are missing and on-street parking is poorly marked.

Recommendations are as follows:

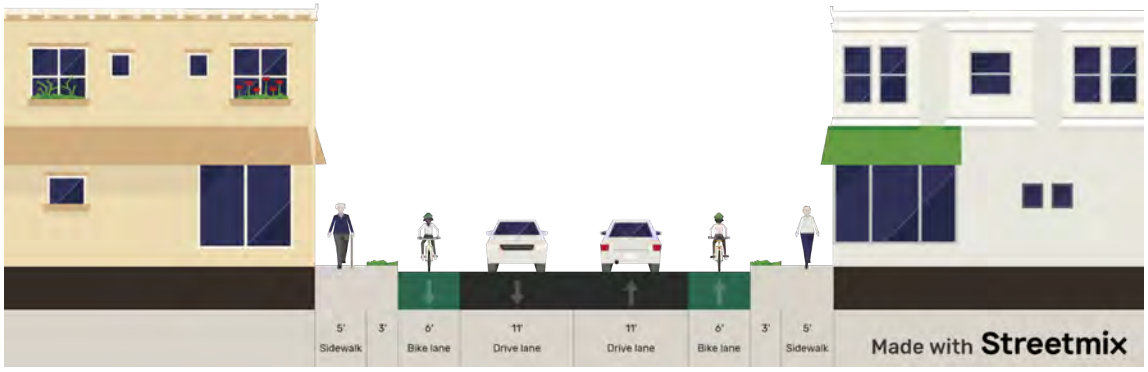
- From S. Washington to Bergen Court, stripe bike lanes on both flanks, resulting in the following street dimension changes:
  - Travel lanes: two 17-foot lanes changed to two 10-foot lanes
  - Bike facility: two 6-foot bike lanes
- From Bergen Court to Schimpf Court, place bike sharrows prominently in roadway.
- Along the Cedar Avenue jockey, paint street emblems as discussed in Part I.
- Eliminate all centerlines.

BIRCH STREET *(Iron District, East-West)*

Existing, Between S Washington and Bergen (Looking East)



Proposed, Between S Washington and Bergen (Looking East)



HICKORY STREET / MATTES AVENUE *(Iron District, East-West)*

Hickory Street is a two-lane two-way street. The eastern segment of the throughfare is a well-shaped neighborhood cross street in the Iron District. The western segment, in need of attention, travels from West Scranton and curves into Mattes Avenue along the Roaring Brook, and consists of two unstriped lanes of excessive width.

View west from Mattes Avenue

Hickory Street's daily traffic volumes are: 10,000 vehicles up to South Washington Avenue; 7,500 vehicles from South Washington Avenue to Mattes Avenue.

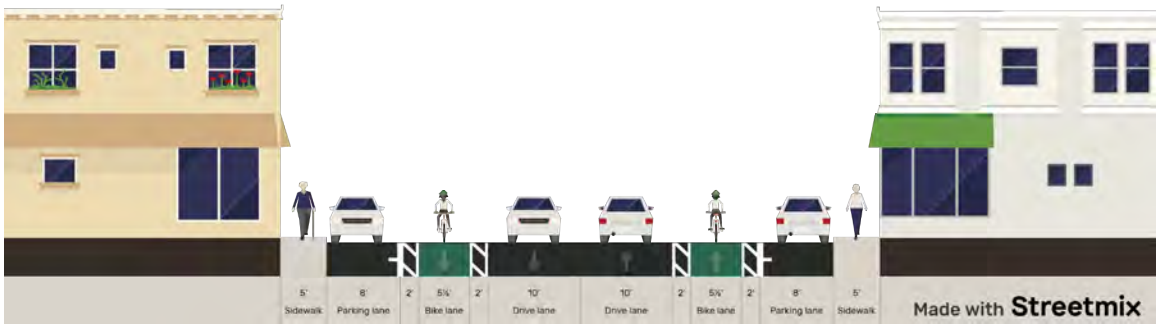
Recommendations are as follows:

- On the western segment, stripe buffered bike lanes (continuing on Mattes Avenue) and add parking, resulting in the following street dimension changes:
  - Travel lanes: two 27.5-foot lanes changed to two 10-foot lanes without a centerline
  - Bike facility: two 5.5-foot bike lanes, connecting to existing bike lane segment across the Lackawanna River
  - Bike lane buffers: two 2-foot bike lane buffers (4 total) framing each bike lane between the parking lanes and the travel lanes
  - Parking: two 8-foot lanes
- Eliminate any centerlines.

HICKORY STREET / MATTES AVENUE *(Iron District, East-West)*

Existing, Typical (Looking West)

Proposed, Typical (Looking West)



SOUTH WASHINGTON AVENUE (Iron District, North-South)

South Washington Avenue is a two-lane, two-way street with travel lanes more than twice as wide as they should be.

South Washington Avenue's daily traffic volumes are just over 11,000 vehicles, which likely merit a left-turn lane at significant intersections.

View north between River Street and Lackawanna Avenue

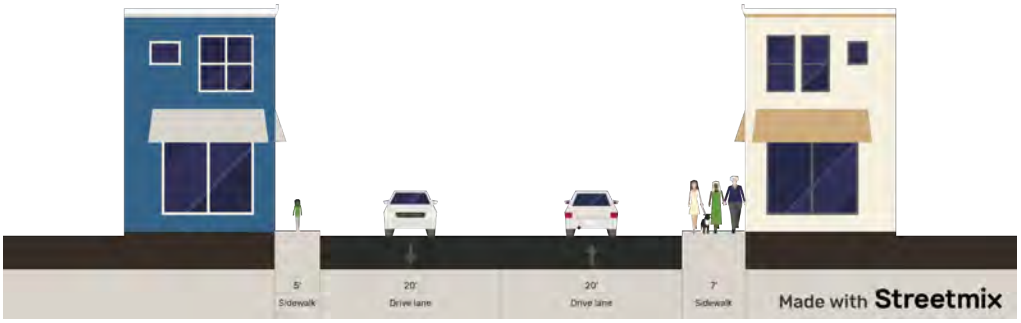
There is no parking demand on this street, so its additional width is best absorbed through bike lanes and buffers.

Recommendations are as follows:

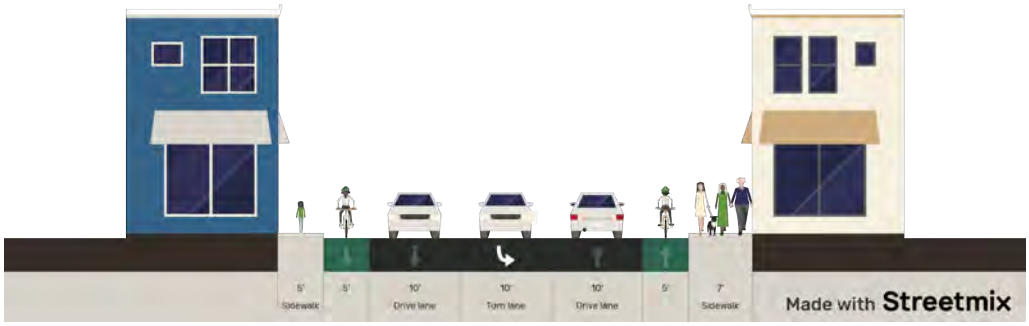
- Narrow the travel lanes to stripe bike lanes and include a turn lane at significant intersections, resulting in the following street dimension changes:
  - Travel and turn lanes: two 20-foot lanes to two 10-foot travel lanes and one 10-foot left turn lane
  - Bike facility: two 5-foot bike lanes
- Eliminate the turn lane midblock to include bike lane buffers, resulting in the following street dimension changes:
  - Travel and turn lanes: two 20-foot lanes to two 10-foot travel lanes and one 10-foot left turn lane
  - Bike facility: two 5-foot bike lanes
  - Bike lane buffers: two 4-foot bike lane buffers between the bike lane and the travel lane
- Eliminate centerlines where no turn lanes are present.

SOUTH WASHINGTON AVENUE *(Iron District, North-South)*

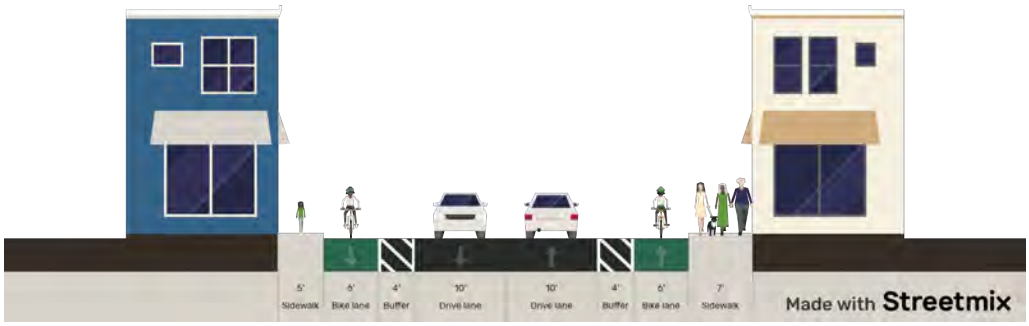
Existing, Typical (Looking North)



Proposed, Typical at Intersection (Looking North)



Proposed, Typical at Mid-Block (Looking North)



CEDAR AVENUE (Iron District, North-South)

Cedar Avenue is a two- to four-lane, two-way, State-owned street that continues Adams Avenue south of Lackawanna. It is the key connector for drivers, pedestrians, and cyclists into the Iron District, and that southern neighborhood's vitality depends in no small part on the street's ability to balance all modes effectively through this connection. Fortunately, its excessively wide and extra lanes through this segment allow for it to fit buffered bike lanes comfortably (protected on the bridge).

Once it arrives in the heart of the District, it becomes a main street with parking on both sides. Shifting bike facilities to Schimpf Court via a one-block cycle track enfronting the gas station allows the street to maintain its parking.

Cedar Avenue's daily traffic volumes are: 3,300 vehicles until it crosses the Lackawanna River; and 5,000-6,000 vehicles in the Iron District; making more than two lanes unnecessary.

View north from Cedar Avenue Bridge

View north between Laurel Line Drive and Lackawanna Avenue

View north between Willow Street and Alder Street, Iron District

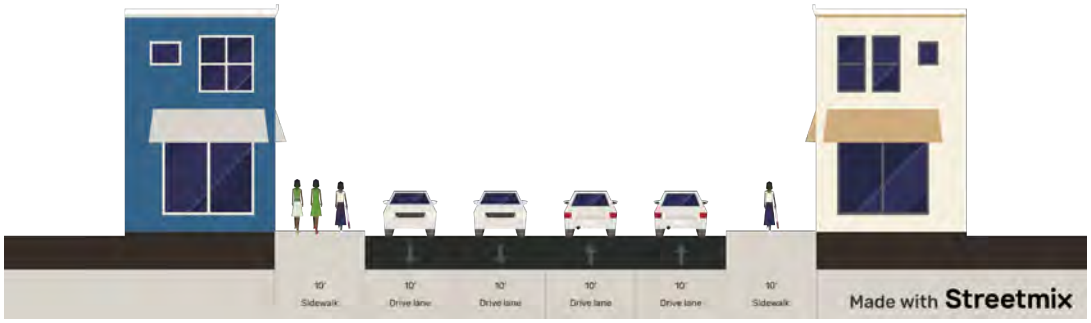
Recommendations are as follows:

- Eliminate the small amount of on-street parking just south of Lackawanna Avenue in order to allow room for bike lanes. New parking on Lackawanna more than compensates for this loss.
- Stripe buffered bike lanes from Lackawanna Ave to Orchard Street, resulting in the following street dimension changes:
  - Travel and turn lanes: Four 10-foot lanes changed to two 10-foot lanes
  - Bike facility: two 6-foot bike lanes

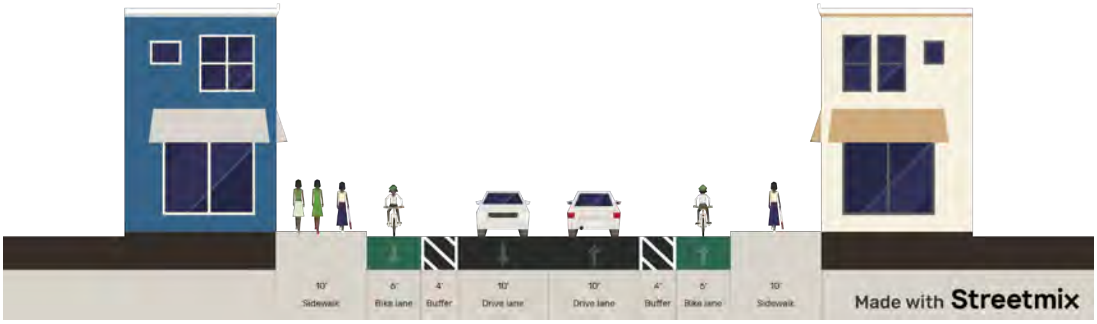
  - Bike lane buffers: two bike lane buffers between the bike lane and travel lane, vary from 2 to 9 feet as the street changes width.
- Provide low jersey barriers or other similar protection across the bridge.
- Stripe a two-way cycle track in front of gas station after bridge (on sidewalk) diverting to sharrows on Schimpf Court, which become a largely car-free bicycle boulevard.
- No proposed changes south of Schimpf Court, to preserve on-street parking.
- Eliminate all centerlines.

CEDAR AVENUE *(Iron District, North-South)*

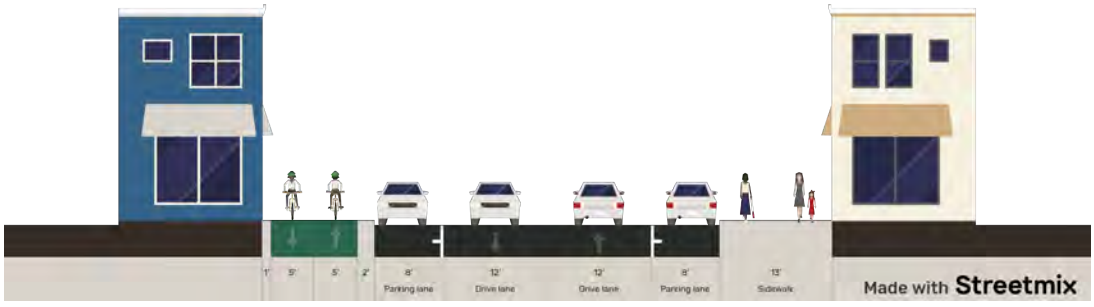
Existing, North of Roaring Brook (Looking North)



Proposed, North of Roaring Brook (Looking North)



Proposed, Orchard to Schimpf Court (Looking North)



STREETS NOT CHANGED

No changes are recommended on the following study area streets:

- Madison Avenue
- Pittston Avenue
- Orchard Street
- River Street
- Alder Street
- Willow Street

Part III: The Useful Walk

Ample Housing in Downtown Scranton

More housing is what makes a downtown great. Jane Jacobs made this point in 1961, when she observed that New York's Wall Street, with 400,000 workers in very close quarters, was still "miserable at providing services and amenities," because it lacked what she called *time spread:* activity around the clock. Why were there no great restaurants or gyms on Wall Street? Because a great restaurant or gym needs both daytime and evening clientele, which only exists in places where people both work and live.

Most American cities have relatively low residential density in their downtown cores, even though many people would like to live there. Whatever non-luxury rental housing gets built is immediately occupied. Yet developers can't—or won't—build it fast enough.

Des Moines uses both tax abatement and TIF to incentivize housing downtown.

Why this mismatch between supply and demand? Because attainable downtown rentals usually don't make much money. Building in urban areas is expensive, and only rents above suburban rates can support it. But very few would-be urbanites can afford those rents. Most of the people who are ready to move downtown in America's midsize cities are students, recent graduates, young entrepreneurs, and childless professionals who don't yet command high incomes. Developers go where the profits are, and they will limit their activity to the suburbs unless some other entity—typically the city—finds a way to make downtown apartments profitable.

Some cities, recognizing that developers need a bit of a push to come downtown—and understanding the great value of *time spread*—have taken the leap to investing in new

attainable urban rentals. Kansas City waves *ad valorem* taxes on such developments. Des Moines offers a 10-year 100% tax abatement, sometimes in combination with Tax Increment Financing covering the next ten years. It is working: in the year 2000, there were only 2500 housing units in downtown Des Moines; that number is now closer to 10,000.

In addition to money, cities can invest time and skill in downtown housing, particularly when it comes to locating and procuring state and federal subsidies. Lowell, MA, managed to double its supply of downtown housing between 2000 and 2010 by offering expedited special permits for the construction of new apartments in its many abandoned loft buildings, and then hand-holding developers through the process of winning Historic Preservation Tax Credits and Community Renewal block grants.

Leadership in Scranton has been well aware of the value of more downtown housing, and has overseen significant achievements in this regard. It is clear that past efforts have paid off, but also that greater efforts are needed.

About 500 new units of housing have been built in historic structures downtown over the past decade. This is by no means a small number, but it is a fraction of the demand for attainable market rate units. A city of Scranton's size and quality should be able to place thousands of new housing units in its downtown and find them swept up by renters and buyers.

But construction costs are high, and the strong demand does not translate into the sort of rents that motivate developers. It is said that the only way to make new apartment building construction profitable here—as opposed to renovation—is to receive a state RACP grant. The City submits these on behalf of developers, and a number are pending. The large empty lot at Mulberry and Jefferson is one of them, currently planned to be 150 apartments plus 28,000 square feet of retail. That project has been pending for four years, and does not look promising for that reason.

Absent state funding—or in addition—one tool that cities use to incentivize both new construction and renovation is Tax Increment Financing (TIF). The local equivalent of TIF is the LERTA program. Outreach to developers suggests that this program would benefit from additional attention in City Hall. One respondent related that the program was good in theory but much more difficult in practice. This intelligence would perhaps suggest that the City consider funding a designated LERTA administrator, one whose job performance is rated based on how many LERTA projects are created.

Scranton has made significant inroads to bringing more residents downtown, and the city is so much better for it. Especially in this time of higher interest rates, it's time to double down on the City's commitment to repopulate its center.

Market-Based Parking in Downtown Scranton

Parking covers more acres of urban America than any other one thing, yet until about a decade ago, there was very little discussion about how parking could be managed for the benefit of a city. Thankfully, due to the work of Donald Shoup, PhD, the author of *The High Cost of Free Parking,* there is now a comprehensive set of practices that cities can undertake to ensure that downtown parking works to make downtown more attractive, more convenient, and more successful.

These practices, which Shoup organizes as a three-legged stool, consist of the following: eliminating the on-site parking requirement; charging market-based prices for parking; and reinvesting increased parking revenue in the very districts where that revenue is raised. We will address each of these concepts briefly.

The On-Site Parking Requirement

Abolishing the off-street parking requirement for all downtown uses is the first of the three cornerstones of Shoup's theory, because it allows the market to determine how much parking is needed. He notes that "removing off-street parking requirements will not eliminate off-street parking, but will instead stimulate an active commercial market for it."

This is what already happens in America's most walkable communities, and happily also in Scranton's downtown C-D District. Eliminating parking minimums in this way simply allows developers to give their customers what they want, without City interference. Unfortunately, though, developers must answer to their lenders as well, and many lenders insist on higher parking ratios than developers may wish to provide. This is especially the case with attainable housing whose residents can be expected to park happily in nearby on-street spaces that are typically empty overnight.

As experienced in Lowell, Massachusetts, active involvement by city government can be the key factor in helping developers to clear this hurdle. There, the City helped demonstrate to developer's banks—who demanded more parking than the City did—that they were satisfying this requirement by assigning City-owned spaces to specific housing developments.

What such involvement would look like in Scranton is a subject demanding more study. Suffice to say that, between its many parking structures (public and private) and on-street spaces, most of which are largely vacant overnight, Scranton has a vast untapped resource to support downtown residential development—so vast that no attainable-housing developer should have to take on the added expense of building on-site parking. Eliminating that

expense alone could make the difference between such development being profitable or not, and therefore happening or not.

The Right Price

As downtown Scranton becomes more successful, the City will likely want to become more strategic in the pricing of its parking. Indeed, such an effort may be warranted already, as an insufficient range of hourly costs results in overcrowding at some curbs and underutilization at others. This outcome is the result of curb parking whose price does not properly reflet its value to drivers.

Popular parking locations like Penn Avenue often fill up completely.

In busy downtown areas, an artificially low price—typically $2/hour—drives up demand for the type of parking that is already hardest to find, short-circuiting the free-market functionality that would otherwise allow people to make smart choices about where to park. The result is a scarcity of the underpriced good (curb parking), and perceptions of inconvenience among potential shoppers. In these locations, a higher meter price would send more cash-conscious drivers to parking structures (at $1/hour) or further afield, so that shoppers with more money to spend would find it convenient to do so.

In less busy areas, a price of $1 or $2 per hour, in this case too high, causes most curb parking to stay empty, as drivers are not adequately motivated to park so far from their destinations. The result is streets whose excess asphalt invites speeding, and sidewalks that sit exposed, lacking the protection of parked cars.

As described by Shoup, the proper price for curb parking is the price that results in a steady availability of one empty parking space per curb face at all times, an occupancy rate of approximately 85 percent. At times, this occupancy can be achieved with a price of $0, but at other times the price must rise significantly to assure that "Daddy Warbucks can always find a spot near the furrier." The most finely-tuned systems therefore have different prices at different times of day.

This broken pay station on the south side of Courthouse Square frustrates more than a few visitors.

Once the role of parking meters is better understood, not as a revenue source but as a means of ensuring proper availability, then Scranton's current downtown parking regime in begins to appear wanting. How desperately it needs fixing depends on how much business is being lost to perceptions of parking unavailability.

A potentially greater disincentive to parking downtown may be the poor quality of metering equipment. Almost every parking transaction attempted by the planning team resulted in frustrating failure and the fear of being ticketed. Several focus group participants commented that "the parking kiosk system scares people away." Since meter revenue, properly collected, is typically more than enough to pay for parking meters, it makes sense for the City to invest quickly in resolving this significant problem.

On the positive side, Scranton is fortunate that all of its on-street and public-lot parking is managed by a single entity, ABM Parking Services, so eventually modifying prices across the whole system, based on market value around the clock, is eminently achievable.

The Parking Benefits District

If and when overcrowding at popular curbs precipitates a motivation to increase meter rates in these locations, there may be some political resistance. Often, downtown merchants fight against increased meter rates or expanded hours, based on the fear that shoppers will be scared away and their sales will suffer. Fortunately, this fear has no theoretical basis and no evidence to support it. In city after city, the business-owners who fought the loudest against market-based pricing were among the first to admit that, once instituted, it increased their sales dramatically. The parking meter was invented (in Oklahoma City) to help businesses—by increasing shopper turnover—and an underpriced parking meter is not being allowed to do its job.

But these concerns are real, and it was in part due to this common resistance that Donald Shoup invented the concept of the Parking Benefits District, which has proven essential in some cities to winning over reluctant merchants to higher meter rates. In a Parking Benefits District, the extra money raised through increased meter revenues is invested it in that

district itself. In addition to improving sidewalks, trees, lighting, and street furniture, these districts can renovate storefronts, hire public service officers, and of course keep everything clean. As has been demonstrated in Pasadena, CA, and elsewhere, these districts can initiate a virtuous cycle where parking demand begets an improved public realm, which in turn begets even greater demand.

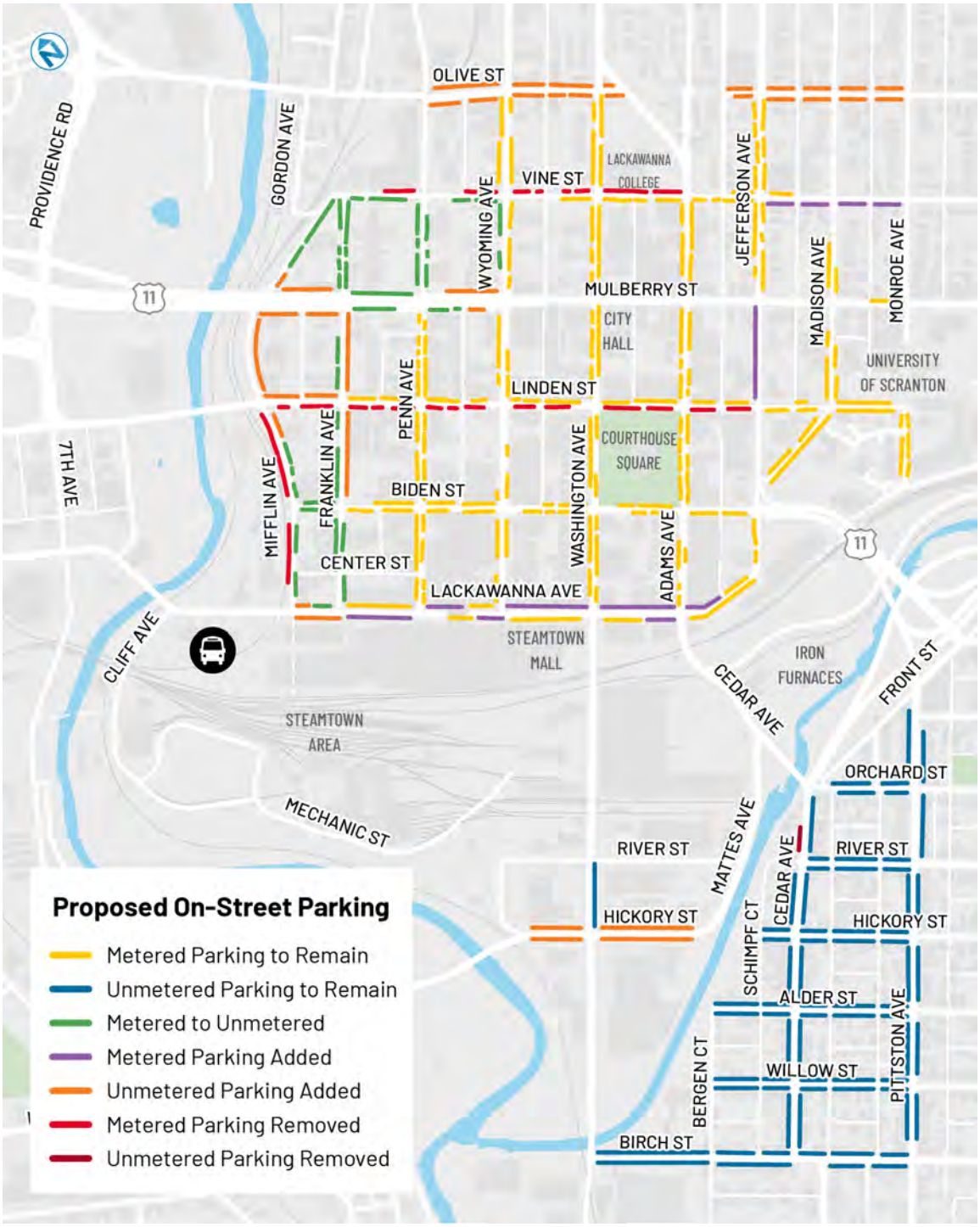
Currently, only a few locations in downtown Scranton are likely to support meter rates much higher than $2 per hour, but the Parking Benefits District should eventually be considered in these places as a tool to secure merchant support for market-based pricing.

In Pasadena, CA, meter revenues fund local public beautification.

If the supply and management of parking in downtown is going to work to the benefit of downtown, then a commitment to the above three basic principles of parking policy should explicitly guide City efforts. While it is not good practice for a planning study such as this to recommend another planning study, it seems likely that the City would benefit from a more careful analysis of parking pricing, metering, and management.

Right Now

In the meantime, a simple change is likely to make downtown parking more efficient, enticing, and less crowded where it matters. Currently, there are a number of street segments within an easy walk of the heart of downtown where almost nobody parks. These streets, like Franklin, Mifflin, and the western ends of Mulberry and Vine, have reduced parking rates—as low as $3.25 per day in some locations. Yet the curbs sit empty, encouraging speeding against unprotected sidewalks.



Proposed changes to parking in Downtown and South Scranton

Empty curbs on Franklin encourage speeding.

Making parking free in these locations, and publicly celebrating this change, would make them a great parking destination for downtown service workers and others looking to save a buck, and would take pressure of the most value spots closer in. These spots would be doubly enticing for sparing their users the trouble of paying by phone or kiosk. They are highlighted in the map above.

It is rare that a downtown benefits from reducing the cost of parking. In this case, getting more people to park slightly further from the heart of downtown could redistribute parking in a beneficial way, while also contributing markedly to street life downtown, as people walk from car to destination.

Useful Transit in Downtown Scranton

A full transit analysis should be undertaken subsequent to this Plan to generate the documentation needed to implement downtown transit route modification opportunities that could result from this Plan's street conversions. Specifically, the following warrant evaluation:

- Creating a more intuitive rider experience that attracts ridership through providing bi-directional routes with direct alignments, ideally on one street rather than routing transit routes on pairs (such as combining bi-directional service on Lackawanna rather than splitting pairs between Lackawanna and Biden)
- Using a market-based approach to review route design, assuring routes are linking with key anchors of ridership potential
- Relocating bus stops to be on the far-side of intersections wherever possible to optimize transit efficiency, while also assuring each stop has a shelter, bench, trash can, and signage with route information which reinforce the convenience and comfort of the transit experience

In short order, County of Lackawanna Transit (COLTS) should publish a static transit route map with downtown area detail, showing the relationship between routes and stops. Even though COLTS' trip planning tool provides dynamic planning opportunities, greater understanding of the downtown transit system would be reinforced with a comprehensive map of all routes.

Part IV: The Comfortable and Interesting Walk

A High-Impact Development Strategy

Most mayors, city managers, municipal planners, and other public servants feel a responsibility to their entire city. This is proper, but it can be counterproductive, because by trying to be universally good, most cities end up universally mediocre. This is particularly the case when it comes to pedestrian activity. Every city has many areas that would benefit from concerted public investment, but only a few where such investment can be expected to have a significant impact on the number of people walking and biking.

The reason for this circumstance can be found in our earlier discussion about the conditions that are needed to welcome pedestrians: the useful, safe, comfortable, and interesting walk. Unless a walk can simultaneously satisfy all four criteria, it cannot be expected to get people out of their cars. Yet, even in American cities known for their walkability, only a limited percentage of the metropolis provides a tight-grained mix of uses, let alone a collection of well-shaped streets that provide comfort and interest. It is for this reason that most walkability studies focus on downtowns; that's where walking can most easily serve a purpose.

And even within an urban downtown, all is not equal. Generally, there are two types of areas within a downtown where public investment will have a greater impact on walkability than in others:

First, only certain street segments in the downtown are framed by buildings that have the potential to attract and sustain pedestrian life. There is little to be gained in livability by improving the configuration of a street that is lined by muffler shops and fast-food drive-thrus. These locations should not be allowed to go to seed; the trash must be collected and the potholes filled. But investments in walkability should be made first in those places where an improved public realm is given comfort and interest by an accommodating private realm—or a private realm that can be improved in short order.

Second, there are street segments of lower quality than those above, but which are essential pathways between downtown anchors—for example from a restaurant row to a college campus—and are also needed to connect different walkable areas to each other. These streets may require greater investment to become walkable, but that investment is justified by their importance to the downtown pedestrian network.

By studying existing conditions, we can see where streets are most ready, or most needed, to support pedestrian life, and focus there.

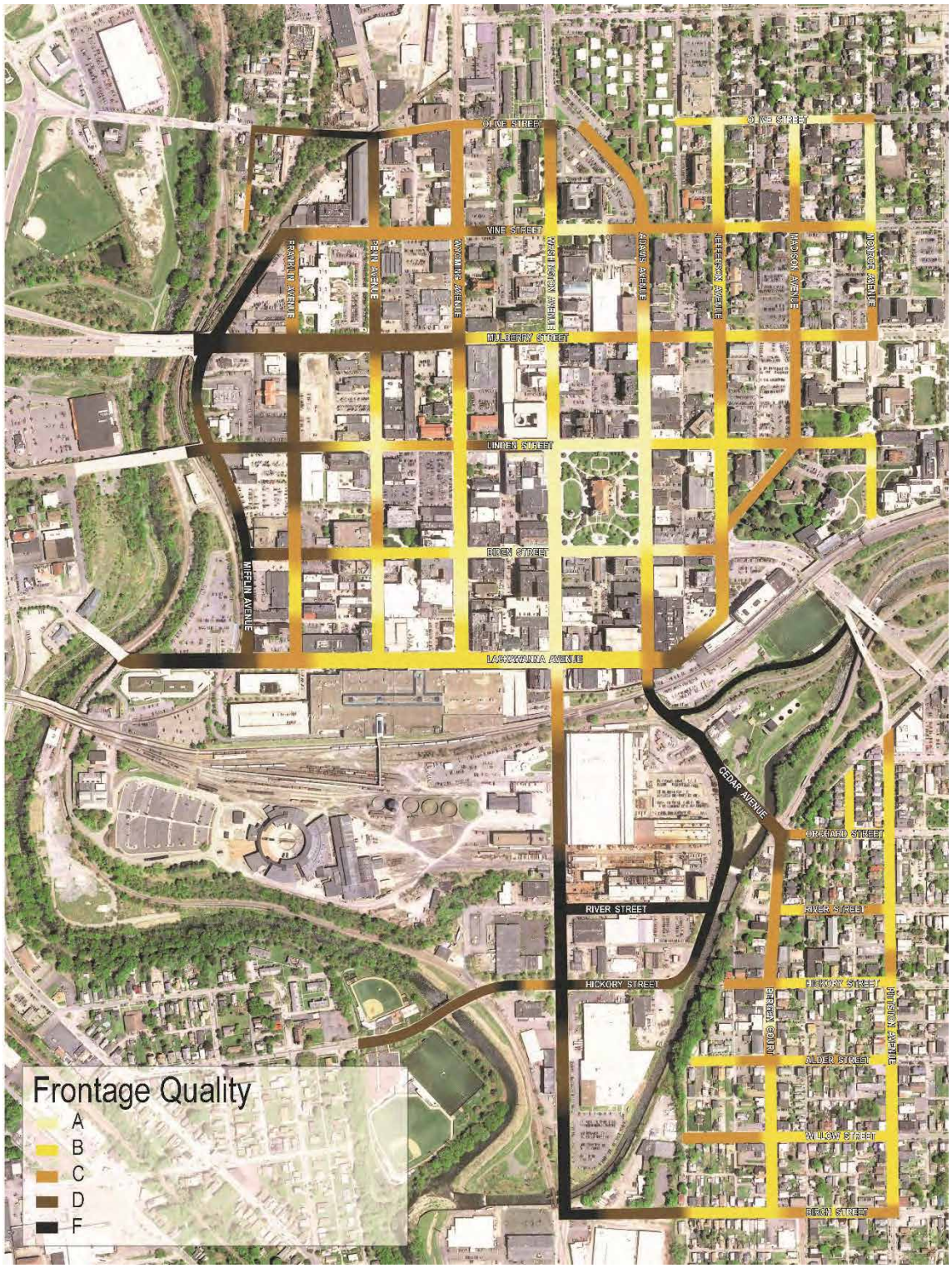
The Street Frontage Quality Rating

The drawing on the next page is the Street Frontage Quality Rating for the study area. This map rates each street segment subjectively in terms of its pedestrian quality, based on the criteria of use, comfort and interest. Lighter-colored areas are generally useful, comfortable and interesting, and therefore capable of attracting pedestrians. Darker-colored areas fail to embrace the sidewalk with active building edges, and it is hard to imagine how limited interventions could turn them into places where pedestrians would feel comfortable.

It is worth stressing that the three criteria measured in this diagram do not include the geometry of the street itself—whether it makes pedestrians feel safe. That important category has already been addressed in the ***Street Reconfigurations*** section and is unique among the four criteria in that it is something that public entities can improve very quickly, spending public dollars. In contrast, usefulness, comfort, and interest can be improved by cities over time—through design codes and, potentially, investment—but those improvements are usually achieved through the efforts of private actors, at arm's length from City government.

Given that the improvement of these three criteria—the ones rated in the drawing above—are generally not publicly controlled, and tend to take more time, it is wise for public agencies to focus on street design as a principal way to improve walkability quickly. That effort, however, needs to be prioritized based upon where the ground is already primed for such improvements to take root.

In this analysis, the ratings—from Best to Worst—truly cover the full range of quality, from delightful to miserable. Only those places marked A or B have frontages that are truly inviting to pedestrians. The good news is that Scranton has more of these inviting street edges downtown than most American cities, whose frontage quality maps generally show a higher percentage of bad street edges and more gaps between appealing areas. If you ignore what's happening between the curbs, Scranton's downtown is remarkably good. In addition, the quality of walkability generally improves as one gets closer to the heart of downtown, suggesting an economically auspicious centripetal force.

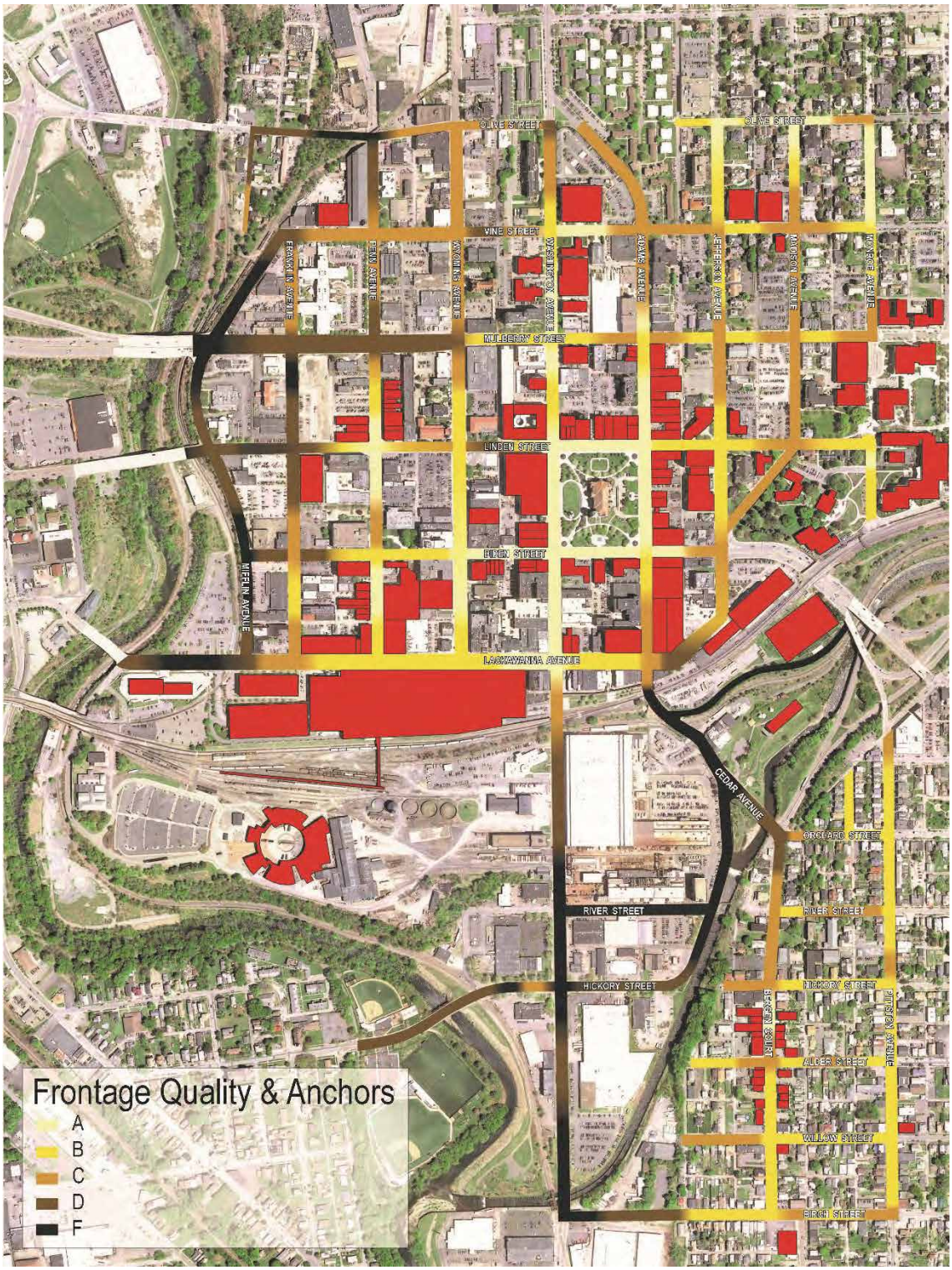


The Street Frontage Quality Rating ignores Safety and instead focuses on the Usefulness, Comfort, and Interest of the street space.

Anchors

In terms of determining where people are likely to walk in downtown—ignoring traffic impacts—the Frontage Quality Assessment presents half the picture. It needs to be merged with another drawing that identifies all the significant anchors in the downtown. Anchors are defined as sites that can be expected to be generators and receivers of pedestrian activity. While Frontage Quality explains where people are likely to *want* to walk, Anchors tell us where people are likely to *have* to walk. . . or at least to find it useful to walk.

Included in the diagram below are the more significant hotels, meeting places, sports facilities, night spots, public buildings, civic spaces, transportation facilities, parking garages, large office buildings, and significant collections of shops and restaurants in the study area. Combining these Anchors in one drawing with the Frontage Analysis gives us a full picture of where pedestrian activity is likely to happen. As a result, this drawing can then serve as a basis for creating another set of drawings that can be more instrumental in the direction of our efforts, the Networks of Walkability.



Added in red are the sites that can be expected to generate a significant amount of pedestrian trips.

The Networks of Walkability

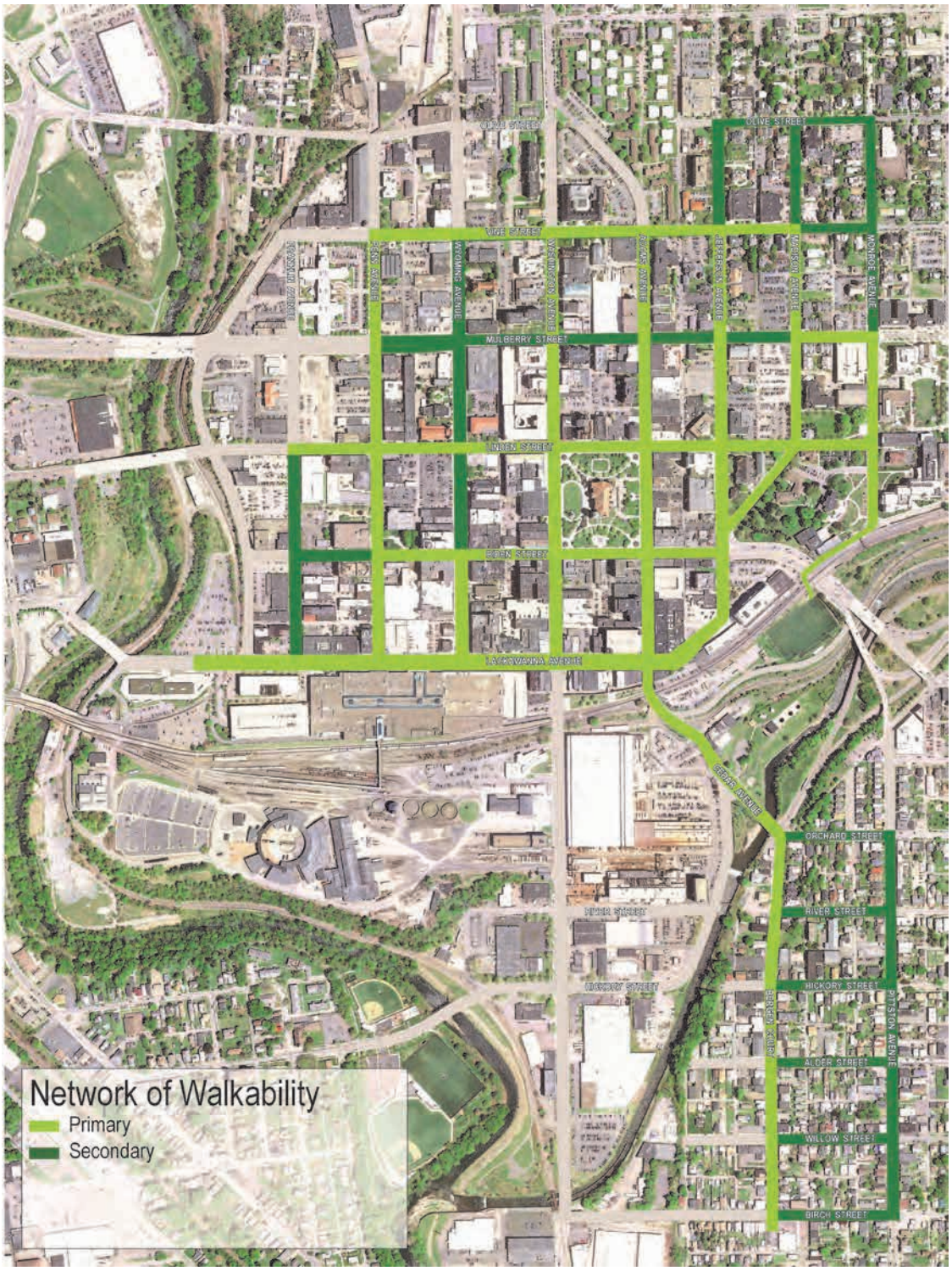
A downtown's Network of Walkability consists of those streets along which people can be expected to walk. It is central to the work of this Study, because it allows us to prioritize investment in the places where it will impact walkability. Simply put, street reconfigurations and property developments located within the Network of Walkability will do more to make Scranton walkable than similar efforts elsewhere.

Turning a Frontage Quality Rating and Anchors diagram into a Network of Walkability is a three-step process. First, the diagram is studied for patterns that emerge, in which certain streets of higher quality come together to form clear walkable areas. Second, those streets are supplemented by the additional streets that are necessary to connect these different areas together. Finally, that network is expanded yet further to provide the most likely paths among anchors.

In Scranton, it is possible to do an even more subtle analysis. As diagrammed below, what emerges are two different networks, as follows:

- The Priority Network of Walkability includes those key connections that are most important for walking.
- The Secondary Network of Walkability includes the remaining streets that are still important for walking, but less so than the above.

These two Networks are distinct from the remaining streets, shown in grey. While these streets do see some people walking, they play a much smaller role in the pedestrian use of the downtown. While they may some day attract more activity, they are not currently places where investments in more walkable street configurations are likely to do much to generate more walking.



The Networks of Walkability emerge from the Frontage Quality and Anchors.

High-Impact Infill

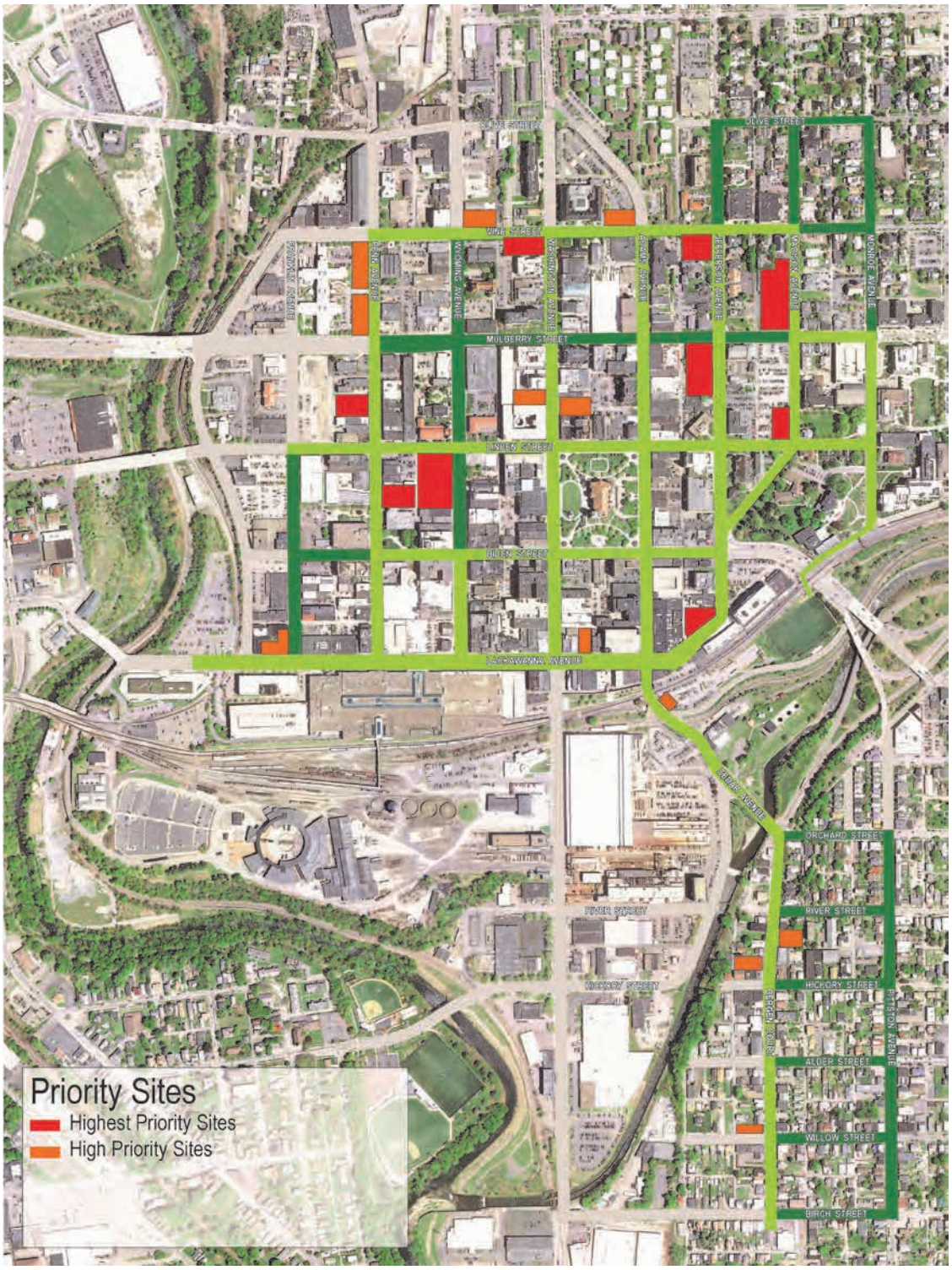
In addition to being a tool for prioritizing the redesign of city streets, the Networks of Walkability are also a tool for prioritizing investment *along* streets. There are dozens of empty sites—"missing teeth"—in downtown Scranton. It would be nice to put new buildings on all of them. But the Networks of Walkability make it clear that buildings in some locations can be expected to have a much greater impact on walking than buildings in other locations.

This point is made by the drawing below, which indicates the non-roadway construction that is necessary to make the key downtown paths truly walkable. This construction fills in missing teeth and turns unfriendly street edges into friendly ones. When combined with the thoroughfare redesigns already outlined, these buildings will add comfort and interest to these streets' planned improvements in safety.

Creating this diagram is a bit more than a mechanical exercise, in which all missing teeth are replaced by buildings. Shown in red and orange are the 21 buildings—some quite small—that are needed to make the Primary Network of Walkability complete. But then, among these, certain buildings—the nine red ones—have been given a yet higher priority, because they are relatively large and/or located in a place where they can be expected to have a disproportionally positive impact on place-making. These are as follows, roughly in order of importance:

- The two lots south of Linden between Penn and Wyoming, which together present a tremendous development opportunity;
- The very large lot at the corner of Mulberry, and Jefferson;
- The very large lot at the corner of Mulberry and Madison;
- The large lot at the corner of Jefferson and Vine;
- The corner lot between the Radisson Hotel and Lackawanna Avenue, a key pedestrian corridor;
- The lot catty-corner to Lackawanna College, which interrupts one of Scranton's best collections of buildings;
- The missing tooth on Penn north of Linden, which interrupts downtown's best retail axis; and
- The corner lot at Linden and Madison.

The specific footprint of each building shown in the diagram can be somewhat flexible, with the understanding that buildings should sit directly against the sidewalk along the majority of their frontages, and that those frontages should receive active, open facades.



The network of walkability and other factors indicate that certain sites are higher—and highest—priority for redevelopment.

Among the less urgent sites noted in the map, one deserves special mention, the street edge on the west side of Penn, stretching from Mulberry to the Penn Paper building. This corridor receives attention ahead as an ideal site for a linear monumental green. It's a bit of a longshot, but if the roughly 75 parking spaces in the eastern bay of the Veteran's Center lot could find their demand satisfied nearby, it would be possible to place two long buildings against the linear green, giving it proper spatial definition and an inhabited edge of "eyes on the street."

This location raises an important point, which is that most of these designated infill sites are currently parking lots. Clearly, proposals for placing buildings on each one should include strategies for satisfy their current parking demand elsewhere. It could well be that ample availability exists nearby, but some horse trading may be needed.

A couple of technical issues merit discussion. First, there is no reason why each red or orange rectangle in the drawing above must be a building; in some cases a public green or other amenity may make more sense. However, any public open space must be well shaped, with buildings at its edges, if it is to be successful. Second, while the street segments marked in green are the most important for walkability, a focus on bike-ability would suggest that key cycling corridors be improved beyond just the segments shown here, since bike lanes are only useful when they reach a significant distance.

To the degree that the City or other organizations are able to sponsor or incentivize building construction in downtown, the 20 sites shown above are the ones to build first, as they perfect the downtown's key pedestrian corridors. Even greater incentives should surround the development of the nine red sites. Investments elsewhere, while perhaps justifiable for other reasons, will not contribute as meaningfully to downtown walkability.

Finally, a word is needed on renovation. While Scranton surpasses most American cities in terms of its remaining stock of sidewalk-facing historic buildings, a remarkably large proportion of these structures are currently vacant, at least at ground level. When it comes to properly shaping the sidewalk edge, filling missing teeth is more important than filling empty buildings. But new construction is estimated to cost about 25 percent more than renovation in Scranton, so downtown housing demand been more effectively met by remodeling older buildings like the Connell Lofts. This should be celebrated, and this discussion does not mean to suggest that renovation stop in favor of new construction. Ideally, the two would occur in tandem.

Two Civic Spaces

Aside from Joe Biden, who now has a street named after him, there are two other wildly (or deservedly) famous things about Scranton that deserve better commemoration within the downtown landscape: The Office and Jane Jacobs. More importantly, there are two locations within downtown that call out for reclamation as social spaces: the excess width of Penn Avenue north of Mulberry, and the parking lot in front of the Radisson. Proposals for each follow.

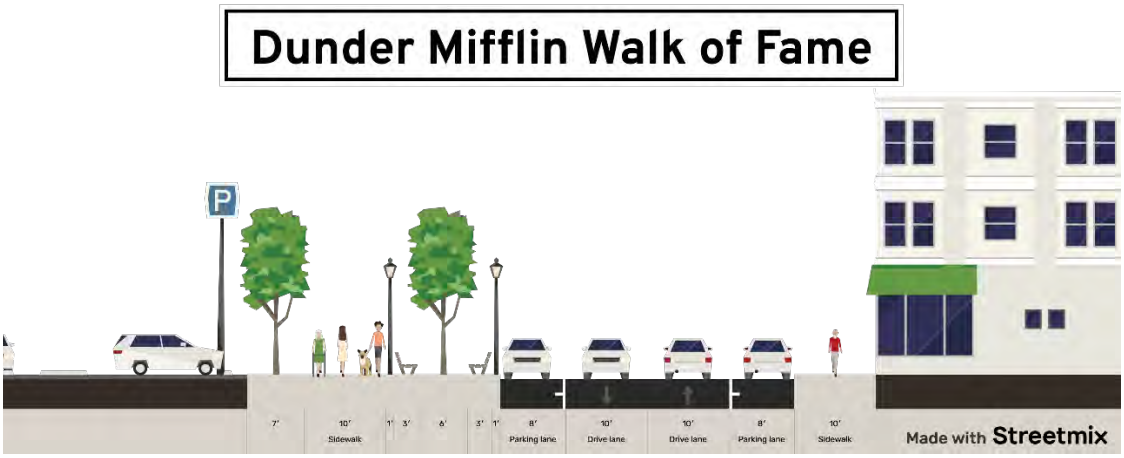
The Office Park

One of the most visited destinations in Scranton is the Penn Paper building at the corner of Penn and Vine. Yet were it not for the regular flow of tourists taking selfies, it would be impossible to discern that this site holds deep meaning for millions of people from all around the world. It would be a tremendous understatement to say that Scranton has not yet begun to capitalize on its status as the location of one of the most beloved television shows of all time. Other popular shows take place in cites, but few make their city an active character in the action. *The Office* steadfastly promoted its setting in Scranton from start to finish, even including a rap chanting its praises. Produced from 2005 to 2013, *The Office* was the most streamed television show globally in 2020. Yet its most postcard-worthy location goes uncelebrated.

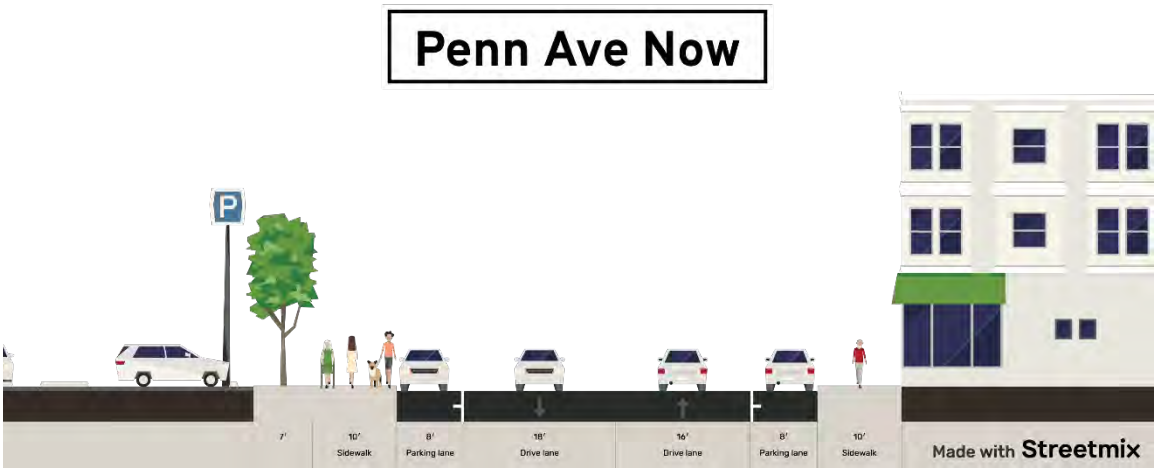
Surrounding Streets

Happily, this unclaimed opportunity shares a site with two other opportunities by the names of Penn Ave and Vine Street. Both of these thoroughfares contain about 15 feet more asphalt than their use for driving and parking demands. This extra width—roughly 50 feet instead of 35—invites illegal speeding in a way that endangers the site's tourists, who are often ambling heedlessly across the street in the quest for the perfect photo.

As further covered in the Street Sections ahead, Vine Street is a well-located cycling route that should hold buffered bike lanes. In contrast, Penn Ave—the path to Penn Paper from the heart of downtown—can be optimized as a pedestrian facility by moving its west curb 15 feet eastward and creating a second tree strip, so that people walking to and from Penn Paper will be embraced by greenery on both flanks. (The west sidewalk currently enjoys a robust allée of Callery Pear trees on its inboard edge—the wrong side for street trees.)



Claiming extra asphalt for a second tree strip creates a linear park and an opportunity to properly celebrate The Office.

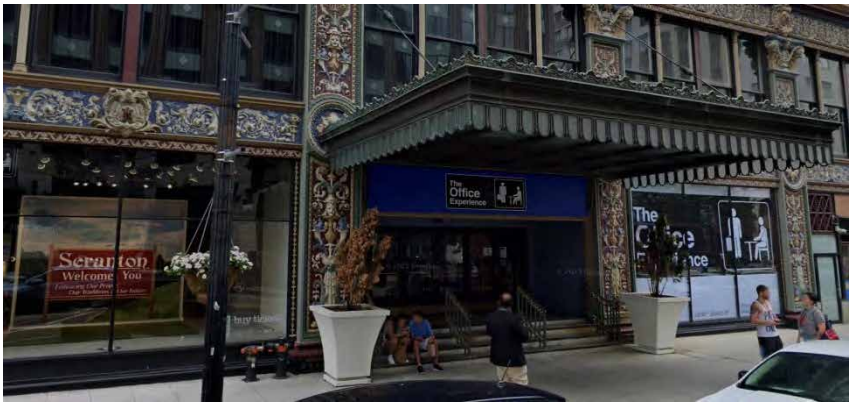


South of Vine, Penn Ave now holds about 15 feet extra asphalt, with street trees on the wrong side of the sidewalk.

While most of the recommendations in the document surround simple restriping, this specific location calls for limited rebuilding, moving Penn Avenue's western curb and adding bulb-outs around the parking lanes at corners. To the north, this bulb-out can run the full length of the Penn Paper building along Vine, embracing both the parking lane and the bike buffer, resulting in a continuous sidewalk more than thirty feet deep. This sidewalk should be treated like a plaza and receive street trees and other amenities.

The Walk of Fame

This effort focuses on making walking and biking more safe and effective in downtown Scranton, but is motivated by the larger goal of helping Scranton thrive. That goal drives all such plans to consider how the city could become a more successful tourist destination, and to acknowledge the untapped potential of a television show beloved by two generations of people around the planet. It is clear that, rather than relying on a bar and gift shop, the City would benefit from taking a more proactive role. So far *The Office Experience* theme parks have been built in Toronto and Washington DC. Why not treat visitors to something more authentic and homegrown?

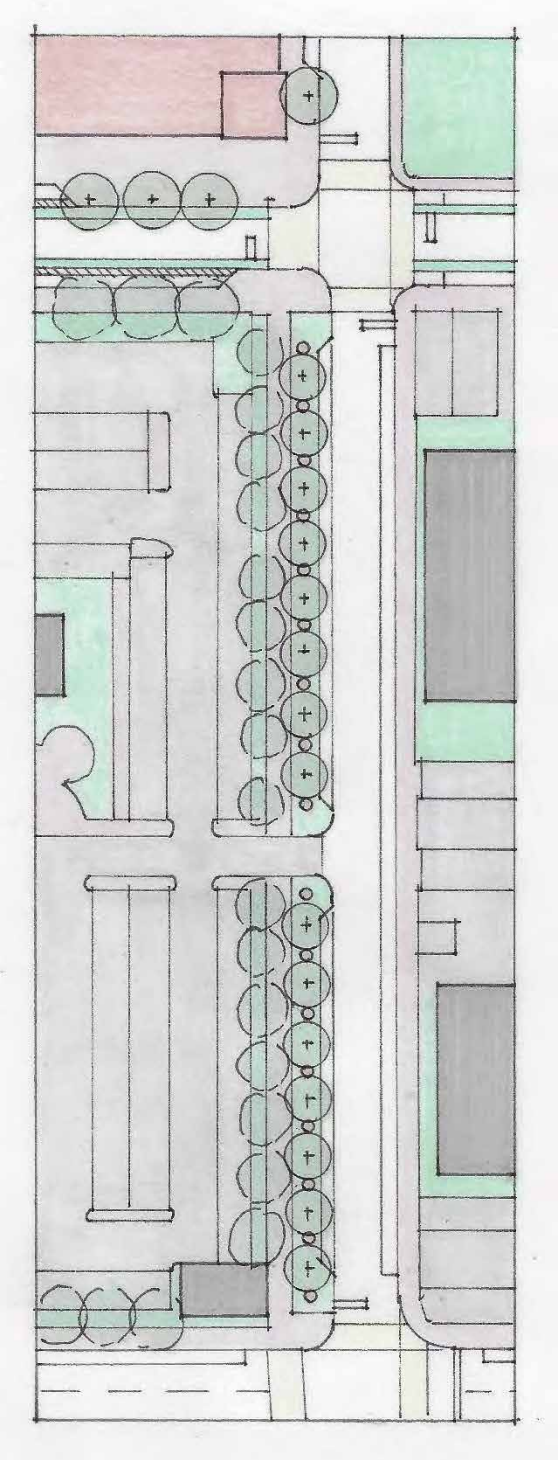


The Office Experience welcomes you. . . to Washington DC.

Whether or not *The Office Experience* or something similar comes to town, it would clearly benefit Scranton to more formally and emphatically celebrate in the public sphere the source of its recent global renown. There are a number of ways to accomplish this. One of them—well worth considering—would be to scatter statues of the two dozen best-known cast members around the downtown, to be discovered scavenger-hunt style. This may be the best solution for bringing shoppers and diners where they can do the most good.

However, there are some people who may feel that turning the entire downtown into a television theme park is beneath the status of the historic city that gave the world Joe Biden and Jane Jacobs. This sentiment, while perhaps not helpful, demands respect. A more refined approach would be to locate these statues, or something similar, on the approach to the Penn Paper building on Penn Ave. This plan recommends putting one statue between each pair of new street trees in the expanded sidewalk between Monroe and Vine Streets, eventually ending on the expanded sidewalk in front of the Penn Paper tower.

Creating this linear memorial could present the city with an ongoing opportunity for publicity, fundraising, and celebration. The highest bidders each year could sponsor one of a limited number of statues, which would arrive as part of a public event including the cast members honored. Perhaps an annual Office Festival could be initiated around this ceremony. And from there, it's only a nine-minute walk to Coopers for a beer.



The Walk of Fame flanks Penn Ave from Mulberry to Vine. The west curb shifts 14 feet east to include a new row of trees and potential statues celebrating The Office. The curb in front of Penn Paper is extended southward, with trees added.

Jane Jacobs Square

The Radisson Lackawanna Station Hotel is one of the most beautiful and important buildings in Scranton, yet it sits behind a parking lot like a Walmart or Home Depot. What other gorgeous hotels, even former train stations, blight their cities in this manner? Very few, and fewer yet in cities with pride. Scranton locals may have grown accustomed to having a grand hotel situated in the manner of a big box strip center, but for visitors—especially the upscale visitors who check into the city's best hotel—it's a letdown.

The parking lot enfronting the former train station

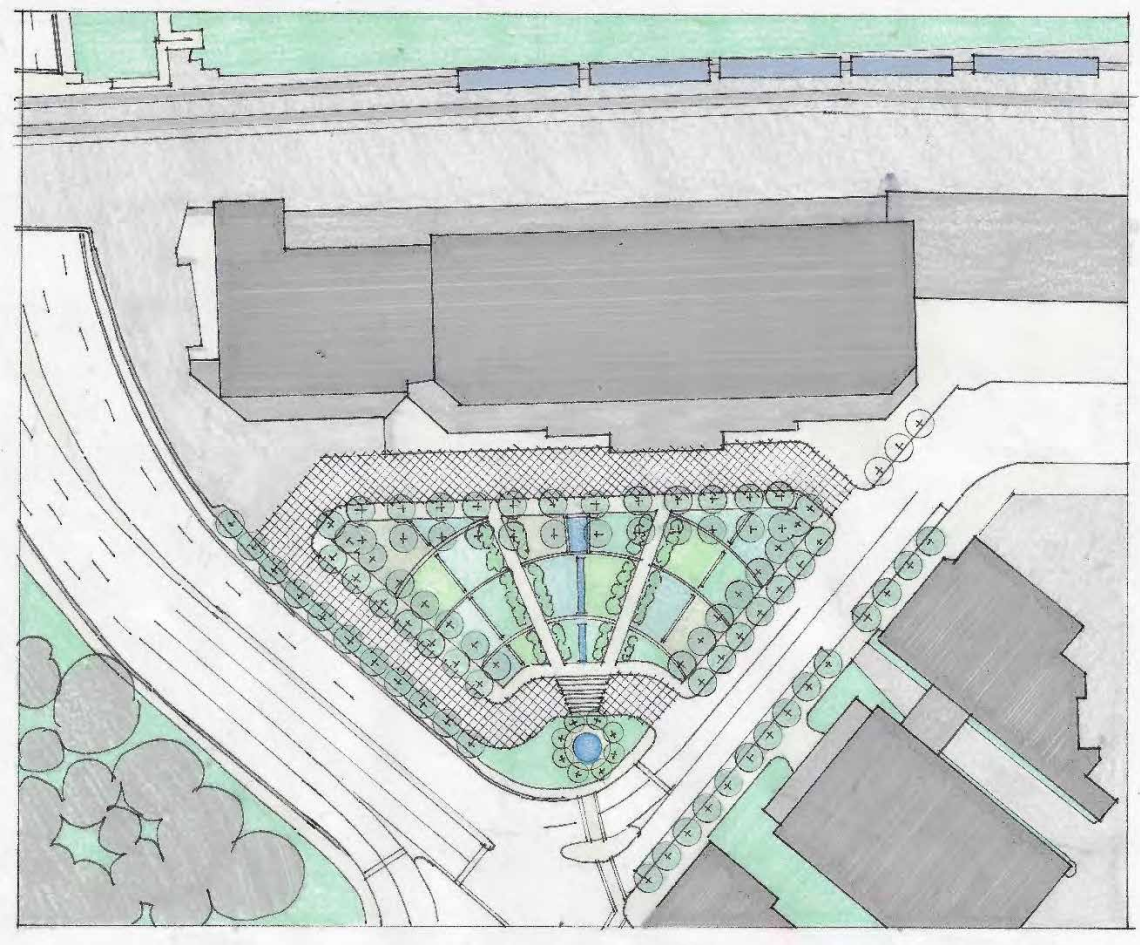
Front parking is the most convenient solution for the Radisson, yet most downtown hotels do not possess parking so proximate, and ample alternative parking is close at hand. While being able to park your car in constant view of your room may be the preferred option for the patrons of a motor hotel, it is not something that many downtown visitors desire. Indeed, one could expect that the same hotel, situated on a lovely square, could command a higher room rate, only supplemented by the proceeds of a robust valet operation.

Earlier postcards show the station in a more honorific setting.

With wise hotel management acceding to the City's requests, all that remains is budgeting and possible fundraising around making the next great civic space in Scranton. Whether or not to dedicate it to Jane Jacobs is worth considering; here we will only note that manifestations of her international fame among urbanists are strangely lacking in and around the city that shaped her.

A proposed first layout is provided here, maintaining vehicular access to the hotel and taking advantage of the upward grade that, just as it displays guests' cars so prominently, could also support a cascading water feature that culminates at the corner, the eastern gateway to downtown.

The design is a placeholder, but aspects worth retaining would be the perimeter drive, a water feature that looks good dry offseason, continuous tree cover at the perimeter, and a central monument worthy of pilgrimage.



A first proposal for a square enfronting the hotel

Part V: Next Steps

1. Capitalize on grant opportunities

The way this Plan can have the fastest impact is if its recommendations are implemented on those streets currently in the funding pipeline. The City has applied for multiple grants to assist in rebuilding select bridges and sections of street and has won many of them. Specifically, the City has won grants for:

- the Cedar Avenue bridge
- the Linden Street bridge
- Biden Street from Mifflin Avenue to Jefferson Avenue
- Linden Street from Mifflin Avenue to Jefferson Avenue
- Adams Avenue from Mulberry Street to Biden Street
- Lackawanna Avenue from Adams Avenue to Jefferson Avenue
- North Washington from Mulberry to Lackawanna (through ARPA Funds)

This Plan's recommendations that would benefit from dovetailing with these grant opportunities include:

- Striping protected bike lanes in both directions on the Cedar Ave and Linden Street bridges
- Striping bike lanes in both directions and stripe parking on the north flank of Linden Street
- Striping a northbound bike lane on the west flank of Adams Avenue
- Building a two-way cycle track on the southern flank of Lackawanna Avenue
- Striping a southbound bike lane on the east flank of North Washington

2. Two-Way Reversion/Signal Elimination

The most dramatic overall change to circulation and safety in downtown Scranton will be most effectively and safely accomplished if implemented all at once: the reversion of four streets to two-way travel, and the corresponding replacement of traffic signals with all-way stop signs that this reversion makes possible. Once two-way reversions are in place—removing multi-lane one-ways approaching multi-lane one-ways—signals will only need to remain on major streets like Lackawanna Avenue, Mulberry Street, and Pittston Avenue, primarily to address traffic to and from the expressway. The reversion to two-way travel and

the replacement of ***22 unnecessary signals*** with all-way stops would best happen together and all at once, both for the safety reasons described above and to avoid the cost of temporarily mounting additional unwarranted signal heads at newly multi-way intersections. PennDOT requires that these recommendations be studied at length at a network impact level. Therefore, counts were collected at intersections across the downtown as part of this Plan in order to expedite that process starting in earnest immediately.

3. A Complete Bike Network

Building bike lanes in American cities can be a frustrating endeavor, as one can keep adding lanes without noticeably growing the cycling population, until a threshold is crossed beyond which cycling actually feels like a convenient connected choice. To make cycling a truly viable alternative to driving in downtown Scranton, the quick implementation of the following facilities is recommended:

- A bicycle corridor on Wyoming Avenue (temporarily not protected)
- Making use of alleys as bikeways on Gordon Avenue and Schimpf Court
- Adding striped bike lanes on Vine Street, Linden Street, Hickory Street/Mattes Avenue, South Washington Avenue, Birch Street and a north/south pair on N Washington and Adams Avenues
- Protected bike lanes on all bridges
- Two-way cycle track on Mifflin Avenue (from Lackawanna to Linden as first-phase)

Inclusion of a cycle track on Lackawanna Avenue would also be ideal as a near-term next step. As this would be integrated into plans for a total rebuild of the street, this is a slightly longer-term goal that would not necessarily be able to be implemented as quickly (see # 5 ahead).

4. Biden Street

As the social heart of Scranton and a key gateway into downtown, Biden Street should be a tone-setting model for Scranton and the catalyst for further improvements.

Using the University of Scranton's recent streetscape upgrades as precedent, the quality of sidewalk experience would benefit greatly from upgraded materials and more trees. A two-way street with travel speeds calmed by on-street parking and expanded sidewalks on both sides will provide a comfortable and attractive environment for walking. Further, revitalizing the park at the corner of Penn Avenue will provide another anchor to Courthouse Square, which already adds to this street's attraction as a signature walking street.

A streetscape rebuild will require more capital relative to many other proposals in this plan. But where better than this street recently renamed for a proud son of Scranton?

5. Lackawanna Avenue

Lackawanna Avenue is a major entry point into Scranton and acts as the backbone of the downtown, but its lack of pedestrian safety severely impacts the whole area. Until Lackawanna can be safely crossed at every intersection, it will remain the greatest impediment to the safety and walkability of downtown.

The avenue would benefit uniquely from a full-scale rebuild to make necessary changes to both the sidewalk and streetscape. Reconstruction of the sidewalk would also allow the City to install a cycle track the full length, providing safe and convenient protected bike facilities across downtown.

The Lackawanna Transit Center anchors the western end of the avenue and makes the avenue an important transit link. With a streetscape redesign, the intersections near the transit center should provide better pedestrian connections for bus riders. To the east, the new park on the Radisson parking lot would provide a suitable second anchor to this important axis, and a convenient link to a rebuilt Biden Street.

Involving rebuilding more than restriping, items 4 and 5 above are longer-term interventions, but they would benefit from immediate initiation, particularly around fundraising. While most of the proposals in this plan involve simple restriping to improve safety, a few key items are more about placemaking and town planning in a larger sense. In addition to the proposed Office Park on Penn Avenue, the key opportunities for improving downtown Scranton's beauty and magnetism can be found in the nexus of rebuilt Lackawanna and Biden Avenues, meeting at a new square in front of the Radisson. It would perhaps benefit fundraising to approach this V-shaped opportunity as a single large project.

6. Listening to the Network of Walkability

Looking again at the Primary and Secondary Networks of Walkability helps to reinforce and put a finer point on the priorities stated above. Worth mentioning first is that, compared to most other downtowns, Scranton's is almost universally poised to benefit from the street improvements contained herein. Most downtowns have large areas of unwalkability lacking in both quality of built fabric and presence of anchors; that is not the case here. Almost any street that is made safer can be expected to attract walking in short order.

Secondarily of note is the key role played by Cedar Avenue, which, if properly reconfigured, has the power to bring downtown's improving vitality deep into the Iron District. The two neighborhoods will never be one, but right now the short distance between them, despite its river views and Iron Furnaces park, meets most of the criteria of a "no-man's land." A big part of this deficit is the high-speed configuration of the Avenue. Placing a quality biking facility on this street will provide better access between neighborhoods as it makes all modes of travel safer.

Finally worth stressing is that the city's very best frontages are located at the very center of downtown, surrounding the Courthouse Square. This circumstance places even more importance on the proposed two-way reversions of Linden, Biden, Washington, and Adams, which happen to form the framework of this area. In some cities, two-way restoration is seen as principally a safety issue; here in Scranton, it can be seen just as much as a tool for bringing the City's heart back to life.

APPENDIX A: PREVIOUS BIKE PLANNING

The Lackawanna River Heritage Trail Plan

It is important to note that the Lackawanna River Heritage Trail, one of the few currently existing bike facilities in Scranton, has not been completed yet. It will connect to downtown in three locations: the spur to Lackawanna Avenue, the spur to Scranton High School, and a street connection to the Olive Street Trailhead from Mifflin Avenue, connecting Gordon Avenue and West Olive Street. This Plan supports the continuation of this trail, and its recommendations do not conflict with its completion.

The Lackawanna Luzerne MPO Bike Plan

The Lackawanna Luzerne MPO Bike Plan published in 2020 has some general recommendations that do not align well with other proposals recommended herein. The plan suggests removing lanes of parking, but it was concluded through fieldwork that this parking was too important to the success of many streets. Moreover, there exist plenty of locations to insert a complete bike network without sacrificing so much parking. The MPO plan was also designed as a loop, which is an inappropriate concept for Scranton, as there is little reason for cyclists to loop around the downtown.

Specific places where the MPO Plan differs from this one include:

- **The plan proposes that Kessler Court become a bike facility**, **but this proposal is not feasible** as it would require mid-block crossings at Biden, Linden, and Mulberry, and would be in direct conflict with a new mail facility for the University of Scranton between Linden and Mulberry.
- **Franklin Avenue** – The MPO Plan proposes bike lanes in both directions, which would result in a significant loss of parking.
- **Penn Avenue** – The MPO plan suggests adjusting the angled parking on Penn to place the bike lane between parked cars and the curb. As discussed, PennDOT will not allow this configuration. Moreover, the Fire Department has indicated that they would not allow any restriping here to be angled
- **Wyoming Avenue** – The MPO plan suggests inserting sharrows into this four-lane high-speed configuration, which is unsafe and not recommended.
- **Mulberry Street** – Inserting sharrows on this high-speed street is similarly quite unsafe. This Plan recommends a bike facility on the slower segments of Mulberry Street: buffered lanes between Wyoming Avenue and Washington Avenue, and striped lanes on the narrower segment further east to Monroe Avenue.

Where the MPO Plan aligns with this one in these locations:

- **Vine Street bike lanes** – Both plans recommend bike facilities for the entire street. However, the MPO plan recommends a cycle track between Wyoming and Mifflin, while this Plan suggests bike lanes on either side in order to retain parking on the south side of the street.
- **Lackawanna Avenue** – Both plans recommend a cycle track along the full length of Lackawanna Avenue on the southwest side of the street, although the MPO plan does not specify that the cycle track be at sidewalk level.

Other recommendations in the MPO plan conflict directly with some of this Plan's suggestions. The MPO plan recommends the reversal of one-way flow on Biden and Linden and the addition of bike lanes on both streets. This suggestion would require costly signal changes with none of the benefits that reverting to two-way travel would provide. This recommendation also assumes that PennDOT would allow changes to the intersection at the entrance to the expressway, something that is likely not viable in the near term.

The Valley in Motion Iron Furnaces Trailway Plan

This Plan also has some overlap with the Iron Furnaces Trailways Plan that Valley In Motion (VIM) has proposed, but a substantial portion of that quite limited network is composed of sharrows in busy streets, which are no longer recommend for the reasons discussed above.

One other notable difference between the VIM plan and these recommendations is where bike lanes connect from across the river to Mattes Avenue. The VIM plan directs cyclists with both bike lanes and sharrows from River Street up to Hickory Street, before turning up Mattes Avenue. These recommendations suggest maintaining the bike lanes on Hickory Street turning onto Mattes, resulting in a safer, more direct route. Cyclists riding on Hickory Street would not have to ride past as many parked cars as on River Street or as many intersections—including one at River Street and Washington Avenue that is unsignalized, at the bottom of a hill, and hidden behind a wall.

APPENDIX B: TRAFFIC ANALYSIS

To: **City of Scranton**

From: **Nelson\Nygaard**

Via: **Speck & Associates**

Date: May 9, 2023

Subject: **Scranton Downtown—Traffic Modeling**

This memorandum describes the modeling effort conducted to test feasibility of proposed street network changes as part of the Scranton Downtown Connectivity Plan. The memorandum is split into two sections:

1. **Pre-analysis Methodology:** Describes the scope of work, base inputs, assumptions, decision making framework, and general methods to conduct the traffic analysis.
2. **Post-analysis Findings:** Describes network changes in the Proposed scenario, decisions made based on the pre-analysis methodology framework, and intersection level of service findings, as compared between the Existing and Proposed scenarios.

PRE-ANALYSIS METHODOLOGY

General Traffic Analysis Assumptions

As the traffic analysis will be designed to test multiple changes simultaneously, this memorandum lays out the assumptions, steps and processes to be used, including the following:

- Use the **network-wide AM & PM peak hour** traffic volumes and turning movement counts (data collected February 7, 2023) as the basis of all analysis scenarios, Existing and Proposed.
- **No future year growth factors** will be applied based on review of historical traffic patterns in downtown Scranton showing decreased volumes historically (pre-Covid).
- Data inputs will **utilize Pennsylvania Default Values called for in the PennDOT Traffic Engineering Manual (Pub. 46)** with respect to base saturation flow rate, start-up lost time, and extension of effective green.
- Synchro 11 will be used to run the model, and **reporting will utilize HCM 2010 delay and level of service metrics as the default, and HCM 2000 metrics where several unique intersection configurations in the study area do not allow HCM 2010 methodologies**. If a majority of intersections are not compatible with HCM

2010 methods or between scenarios, all intersections may be reported using the HCM 2000 methodology for consistency. Queue lengths using Synchro's deterministic calculation reports will be used as the basis of testing key lane configuration and turning lane changes.

- Signal timing plans were provided by the City of Scranton and interpreted using best judgement. Where missing information was present, such as coordination offsets, those settings were left as default in the modeling software and maintained throughout scenarios for consistency.

Assumptions and analysis will be completed conservatively, with the appropriate judgment described in this memorandum. The sections below provide further detail on the analysis methodology for each step.

Scope of Intersection Analysis

- In order to examine the feasibility of proposed street configuration and traffic control changes that could result from proposals to convert one-way pairs to two-way and removing excess travel lane capacity within the downtown network. The following eight (8) intersections were agreed upon to be studied as a 'proof of concept' for the nature of such changes:
  1) Mulberry/Washington
  2) Mulberry/Adams
  3) Mulberry/Jefferson
  4) Linden/Jefferson
  5) Biden/Wyoming
  6) Biden/Jefferson
  7) Lackawanna/Washington
  8) Lackawanna/Adams/Cedar
- Additional street configuration changes proposed as part of the overall Downtown study are located outside of the aforementioned eight intersections and are not being analyzed as part of the scope of the current traffic modeling effort.
- In order to support subsequent traffic studies focused on implementation and engineering, additional traffic count data was collected at additional intersections outside of the core analysis locations.

One-Way to Two-Way Conversion Analysis Assumptions

- Upon converting a one-way couplet to a two-way street, the analysis will distribute traffic in a 60/40 split, where the previous one-way will carry 60% of its original traffic

with 40% diverting to the opposite couplet. The volume redistribution will apply to both through and turning movements.

- Where multiple new turning movements introduced as a result of one to two-way conversions would reasonably draw their volume from a single existing turning movement, those movements are distributed by multiple factors of the 40/60 split based on their distances, resulting in a 36/24/24/16 redistribution. This occurs only in the core of the two-way couplet system: Linden/Adams, Linden/Washington, Biden/Adams, Biden/Washington.
- On corridors that intersect with existing two-way streets and at the periphery of the study area, volumes will be rebalanced according to existing demand on up- and downstream blocks using best judgement. For example, new westbound through movement on Linden at Jefferson was given a custom balanced volume, as assuming 40% of Mulberry traffic diverting would be unreasonable due to each roadway's differing uses in the downtown network.
- At major intersections where two-way converted streets remain signalized intersections, signal phasing will match existing cycle lengths and general phase structure**, unless specific changes are recommended to improve operations** (e.g. protected- permitted phasing in existing scenario will be tested as protected-permitted phasing in Proposed scenario).
- To be especially conservative, our calculations will not take into account any system-wide trip reduction for the one-way "circling" trips that are occurring today. We note though that the direct access to destinations afforded by reversion to two-way travel will be beneficial to users and will likely reduce overall traffic volumes.

Signal to All-way Stop Conversions

- All testing for proposed conversions from a traffic signal to an all-way stop control will be assumed to become single lane approaches on all applicable legs (i.e. removes turn pockets)

Turn Pockets

- Left turn pockets will be evaluated based on projected volume demand, and as a baseline we intend to use 100 hourly left-turning vehicles[1] as a conservative threshold to provide a left-turn lane, unless unique geometrics or low through/right movements at the approach would allow for a shared lane with higher than 100 hourly left-turning vehicles.

[1] Fitzpatrick and Wolff. "Left-Turn Lane Installation Guidelines". 2nd Urban Street Symposium of TRB. 2003.

- Shared through-right lanes (rather than separate right turn pockets) will be the default lane configuration for accommodating right turn movements in the Proposed scenario at study intersections, unless projected queues coinciding with a high number of pedestrian crossings would warrant the addition of a right turn pocket.
- Right turn on red will be allowed unless the existing scenario restricts it, and the intersection remains signalized in the Proposed scenario.

Peak Hour Factor

- Turning movements for the existing 8-intersection model have been coded using their intersection average peak hour factor applied across the entire intersection's allowed movements. Intersections included in the model for volume redistribution purposes but not for detailed analysis have been coded with default peak hour factors (0.92)
- In the proposed network model, new movements allowed will be assumed to have the same PHF as the existing model's coded PHF specific to that intersection.

POST-ANALYSIS FINDINGS

An overview of both study and non-study intersection changes to the downtown street network, lane configuration decisions made based on the analysis methodology, and signal timing plan assumptions can be found below. Visual representations of the traffic model that show volume and lane configuration changes between the Existing and Proposed scenarios, as well as detailed analysis reports can be found in the **Appendix**.

Street Configuration Changes

A number of street configuration changes were made to the model network in order to both reflect anticipated changes recommended by the Downtown Connectivity and other configuration changes that we anticipate would be needed to sustain an acceptable network function. Note that the list below includes only changes proposed within the downtown model network, bound by Lackawanna Ave, Mulberry St, Wyoming Ave, and Jefferson Ave. Changes proposed at non-study intersections were made in the model, however were not reported on in detail:

- **Wyoming Ave:** Four to two-lane road diet. Single lane approaches at intersections, with the exception of northbound approach at Mulberry St, which has a left turn pocket.
- **Washington Ave/Adams Ave:** One- to two-way conversion. Single lane approaches at all intersections, except for south of Lackawanna Ave where street configuration is unchanged.

- **Jefferson Ave:** Added 175' left turn pocket on the northbound approach at Linden St to accommodate new left turning movement. Space for this lane is reallocated from the southbound third receiving lane where only two lanes are required.
- **Lackawanna Ave:** Four- to three- road diet with turn pockets at intersections. The intersection of Lackawanna Ave and Wyoming Ave converted to all-way stop control.
- **Biden St:** One- to two-way conversion with single lane approaches at all intersections, with the exception of the block between Adams Ave and Jefferson Ave which remains one-way westbound. The two westbound lane approach at Adams Ave, a proposed all-way stop intersection, are configured as a left turn only lane plus through-right lane.
- **Linden St:** One- to two-way conversion with single lane approaches at all intersections, with the exception of the block between Adams Ave and Jefferson Ave, which is configured with a left-through shared lane pocket of 150' with the rightmost lane serving as a right turn only lane.
- **Mulberry St:** Lane configurations were unchanged, with the exception of side street approaches, as detailed above.

Signal Timing Changes

The following signal timing changes were made to the model network, either as a result of removal of signals, the need to accommodate new approach direction phasing, or an opportunity to improve operations to sustain the proposed downtown street network:

- A total of seven signal to all-way stop conversions at
  - **Lackawanna Ave** at Wyoming Ave, Biden St, Linden St (Note: Only Lackawanna/Biden was a scoped study intersection)
  - **Washington Ave** at Biden St and Linden St (Note: both are non-scoped study intersections)
  - **Adams Ave** at Biden St and Linden St (Note: both are non-scoped study intersections)
  - **Where signals remain, timing plans maintained cycle length and general phasing schemes** (including leading pedestrian intervals and pedestrian scrambles) with the following exceptions:
  - **Washington Ave at Lackawanna Ave and Mulberry St, Adams Ave at Lackawanna Ave and Mulberry St:** Where the addition of a new two-way direction phase was required, this phase was introduced and ran concurrently with the opposing direction's phase

- **Jefferson Ave at Linden St:** Additional green time was provided in the northbound direction to better serve left and through movement traffic. Cycle length remained the same.

Intersection Level of Service Summary

An intersection delay and level of service summary table is below. Some key findings include:

- Of the eight study intersections, Level of Services remain the same for all time periods with the exception of one location: Lackawanna Ave and Adams Ave/Cedar Ave (where in the PM peak the LOS goes from B to C in the Proposed scenario).
- Generally, average intersection delays marginally increase across all intersections and time periods and in some cases improve due to the rebalancing of volumes as a result of the one- to two-way conversions. Note that these changes in delay assume a conservative rebalancing of traffic, as the changes from one- to two-way street travel will eliminate circling of blocks in which vehicles pass through multiple intersections and increase turning movement counts.
- The greatest increase in delay is during the PM peak hour at Lackawanna Ave and Washington Ave, where the effects of the road diet increase the volume/capacity ratio but remains LOS D in the Proposed scenario, matching existing. Signal timing changes could mitigate this impact; however, the resulting condition was left unchanged for consistency across the Lackawanna Ave corridor in this exercise.
- The introduction of new northbound turn pocket and increased northbound green time at the intersection of Jefferson Ave and Linden St improves the PM peak operations overall.

Table 1 Intersection Analysis Summary

#	Intersection	Control Type (Existing/ Proposed)	Methodology1	Analysis Period	Existing			Proposed		
					LOS	Delay(s)	v/c	LOS	Delay(s)	v/c
1	Mulberry St / Washington Ave	Signal	HCM 2000	AM Peak	B	12.5	0.34	B	13.6	0.37
				PM Peak	B	15.1	0.43	B	18.4	0.46
2	Mulberry St / Adams Ave	Signal	HCM 2000	AM Peak	B	11.1	0.34	B	12.3	0.35
				PM Peak	B	14.0	0.37	B	16.1	0.42
3	Mulberry St / Jefferson Ave	Signal	HCM 2000	AM Peak	D	39.7	0.51	D	42.3	0.49
				PM Peak	D	38.7	0.55	D	39.2	0.54
4	Linden St / Jefferson Ave	Signal	HCM 2000	AM Peak	B	17.5	0.56	B	18.1	0.57
				PM Peak	C	32.8	0.64	C	28.8	0.60
5	Biden St / Wyoming Ave	Signal / AWSC	HCM 2000	AM Peak	C	20.4	0.22	C	18.8	0.42*
				PM Peak	C	26.0	0.18	B	11.5	0.37*
6	Biden St / Jefferson Ave	Signal	HCM 2000	AM Peak	B	18.7	0.67	B	16.3	0.73
				PM Peak	C	20.7	0.55	C	20.2	0.59
7	Lackawanna Ave / Washington Ave	Signal	HCM 2000	AM Peak	C	31.5	0.38	C	33.5	0.48
				PM Peak	D	36.9	0.53	D	50.8	0.72
8	Lackawanna Ave / Adams Ave/Cedar Ave	Signal	HCM 2000	AM Peak	B	14.0	0.20	B	17.7	0.37
				PM Peak	B	14.1	0.32	C	27.6	0.64

1. HCM2010 method could only process results for 1 intersection in Existing and 2 intersections in Proposed, therefore HCM2000 was utilized for all intersections for consistency

*For AWSC, the v/c ratio is reported as the ICU (Intersection Capacity Utilization).