



Allegheny County, PA

*The Route 51 Corridor: A Gateway To
A Sustainable Future*

SDAT



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The American Institute of Architects Sustainable Design Assessment Program



Introduction

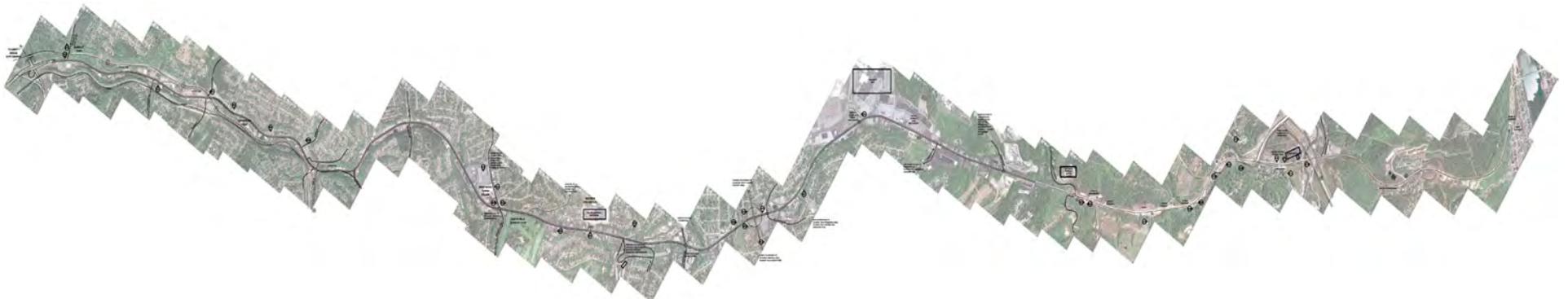
The Route 51 Steering Committee and Economic Development South requested an AIA Sustainable Design Assessment Team (SDAT) project to help create a “unified vision to revitalize” the Route 51 corridor south/southeast of downtown Pittsburgh, PA. This is a cooperative effort of seven municipalities, the county, and several state and economic development agencies.

The Route 51 Steering Committee compiled background data to help inform the process. The SDAT preliminary visit (March 17-19, 2010) helped identify the focal issues and the expertise needed for the full sustainable design assessment team. The full SDAT visit (October 4-7, 2010) consisted of a team leader, an architect, a professional engineer, a planner, a transportation planner, a sustainable design consultant, and two members of AIA’s national staff from the Center for Communities by Design.

The project area is a 13 mile stretch of Pennsylvania Route 51. It extends from the Liberty Tunnel, at the edge of downtown Pittsburgh, to the Elizabeth Bridge on the Monongahela River.

The project area is anchored, just outside of the study area, by successful post-industrial downtown Pittsburgh to the north and the declining industrial borough of Elizabeth, PA to the southeast. Between these two anchors are a range of urban, suburban and exurban areas. This area includes some great resources, including an overall low cost of living, relatively easy access to Pittsburgh, and strong, intact communities. The project area, however, also has its share of challenges, including disinvestment along parts of the corridor, traffic congestion, a transit system that is currently not serving its full potential, a road unfriendly to pedestrians and bicyclists, flooding, and combined sanitary/storm sewer overflows.

Most of the Pennsylvania Route 51 infrastructure is no longer sufficient to serve its ostensible current missions: a very high volume arterial that is simultaneously expected to serve abutting communities, businesses, transit, pedestrians and bicycles,



with minimal impact on the environment. The result is a road that is partially serving many of these multiple missions, but not serving any of them very well.

The SDAT has a number of recommendations to transform the corridor from Pennsylvania State Highway 51 to a newly named Route 51 South Hills Parkway. We suggest this name not for what it is today, but for what it can and should be.

Our recommendations are intended to serve the needs of vehicles and all modes of transportation, create new economic development, serve community needs, reduce the corridor's carbon and environmental footprint, and make the corridor a more sustainable place to live, work, and play.

Route 51 Officials Speak:

"The open access from Route 51 is a free for all."

-a Route 51 Town Manager

"Route 51 has urban blight. Otherwise, we are 'hometown USA.'"

-a Route 51 Town Council member

The Sustainable Design Assessment Team (SDAT) Program

The SDAT program focuses on the importance of developing sustainable communities through design. The mission of the SDAT program is to provide technical assistance and process expertise to help communities develop a vision and framework for a sustainable future. The SDAT program brings together multidisciplinary teams of professionals to work with community stakeholders and decision-makers in an intensive planning process. Teams are composed of volunteer professionals

representing a range of disciplines, including architects, urban design professionals, economic development experts, land use attorneys, and others.

Today, communities face a host of challenges to long-term planning for sustainability, including limited resources and technical capacity, ineffective public processes and poor participation. The SDAT approach is designed to address many of the common challenges communities face by producing long-term sustainability plans that are realistic and reflect each community's unique context. Key features of the SDAT approach include the following:

- **Customized Design Assistance.** The SDAT is designed as a customized approach to community assistance which incorporates local realities and the unique challenges and assets of each community.
- **A Systems Approach to Sustainability.** The SDAT applies a systems-based approach, examining cross-cutting issues and relationships between issues. The SDAT forms multi-disciplinary teams that combine a range of disciplines and professions in an integrated assessment and design process.
- **Inclusive and Participatory Processes.** Public participation is the foundation of good community design. The SDAT involves a wide range of stakeholders and utilizes short feedback loops, resulting in sustainable decision-making that has broad public support and ownership.
- **Objective Technical Expertise.** The SDAT Team is assembled to include a range of technical experts from across the country. Team Members do not accept payment for services and serve in a volunteer capacity. As a result, the SDAT Team has enhanced credibility with local stakeholders and can provide unencumbered technical advice.

- **Cost Effectiveness.** By employing the SDAT approach, communities are able to take advantage of leveraged resources for their planning efforts. The AIA contributes up to \$15,000 in financial assistance for each project. The SDAT team members volunteer their labor and expertise, allowing communities to gain immediate access to the combined technical knowledge of top-notch professionals from varied fields.

The SDAT program is modeled on the Regional and Urban Design Assistance Team (R/UDAT) program, one of AIA's longest-running success stories. While the R/UDAT program was developed to provide communities with specific design solutions, the SDAT program provides broad assessments to help frame future policies or design solutions in the context of sustainability and help communities plan the first steps of implementation. Through the Design Assistance Team (DAT) program, over 500 professionals from 30 disciplines have provided millions of dollars in professional pro bono services to more than 190 communities across the country. The SDAT program leverages the pivotal role of the architectural community in the creation and support of sustainable livable communities.

The following report includes a narrative account of the Allegheny County SDAT project recommendations, with summary information concerning several principle areas of investigation. The recommendations are made within the broad framework of sustainability, and are designed to form an integrated approach to future sustainability efforts in the community.



EXECUTIVE SUMMARY & THEMES

Wayne Feiden

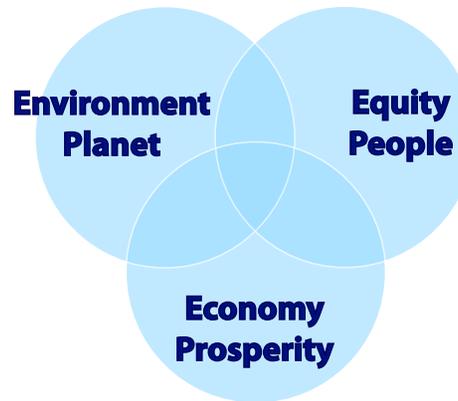
Over the years, Route 51's mission morphed to become a high volume commuter route, a major economic development corridor, and the front door to a number of communities. It is not serving any of these roles nearly as well as it should. There is, however, enormous potential to update the social, physical, economic, and regulatory infrastructure and transform the corridor.

We envision a transformed Route 51 South Hills Parkway that better serves the economic, social, and environmental health of the corridor. This transformation will improve the quality of life and well being of the corridor.

Five themes cut across all aspects of the South Hills Parkway sustainable design assessment. These five themes that are part and parcel of the opportunity to transform this corridor.

- Think Sustainability!
- Re-purpose Route 51
- Transit connections
- Focus development on nodes
- Live, play and work together

Sustainability Triple Bottom Line



Think Sustainability!

Sustainability is maximizing the long range benefits to the environment (or planet), economy (or prosperity), and social equity (or people). This is less a series of actions than a dialogue—every potential public policy, regulation, or investment should be viewed through the lens of whether it makes the corridor more sustainable or less sustainable. We believe that this is the focus that the community needs to have for every action or inaction.

Re-purpose Route 51

Route 51 should be optimized to provide multi-modal transportation, economic development and a sense of place or front door for all the adjacent communities. A focus on improving the road for vehicle transportation would eventually lead to a limited access highway that would bring suburbanites into Pittsburg, and not necessarily serve the communities along the way. Likewise, blind opening of every parcel of land along the road in the name of economic development will lead to total gridlock, and not maximize economic development (since low-end strip development generates more traffic problems but fewer jobs and a lower tax base than village centers/nodes).



Equally important, taking advantage of natural systems to address environmental problems, especially stormwater, will lower the costs of road and economic development improvements and help create the sense of place that residents crave and that provides the greatest long term economic return.

Repurposing means limiting access to Route 51 (to improve its safety and performance) and using that access to encourage village centers, transit oriented development, and strong economic clusters. It also means making the roadway into a parkway that moves cars, but also restores natural systems and moves water in adjacent restored streams. Finally, it means making Route 51 a friendly front door to the neighboring communities, a front door that works for transit, bicycles, pedestrians, as well as cars.

Transit Connections

Transit is the most effective way to generate more economic development and housing without generating new traffic. New development focused on the existing bus way and light rail and new development in village centers and adjacent to park-and-ride lots can provide the critical mass that existing transit systems need to be strong while



providing new economic opportunities. In an era of limited resources, it is unrealistic to expect significant new transit services but it is easy to focus development to build on the existing transit services

Focus Development On Nodes

There are opportunities for focused nodes or village centers, including opportunities such as Brentwood Center; a redefined Century III Mall; transit oriented development projects adjacent to light rail and bus way transit



stops; and a new Jefferson Hills village center. These nodes have the opportunity to create a strong sense of place and generate far more jobs, economic development, tax base, and housing than spread out strip development.

Restoring natural systems and greenways and preventing new development in the areas between the nodes would then enhance those nodes and the overall community sense of identity; provide lower cost methods of treating stormwater; and allow Route 51 traffic to flow more smoothly and efficiently.

Live, Play and Work Together

The Route 51 corridor is made up of seven municipalities and many public and private agencies. There is cooperation between the different units of government and non-government organizations, but there are also efficiencies and confusions. More formalized agreements, cooperation, shared regulatory and planning systems will enhance opportunities for a stronger community and successful economic development.



SUSTAINABLE DEVELOPMENT- A UNITING THEME

Tommy Linstroth

What are Sustainability and the Triple Bottom Line?

There are many definitions of sustainability. Google “sustainable development” and you get millions of hits. Everyone wants sustainability; it’s become the new buzz word. Green is the new black. Unfortunately, sustainability is so overused that sometimes it means nothing.

One of the most commonly used definitions of sustainability in both the United States and around the world was developed by the UN World Commission on Environment and Development, also known Bruntland Commission, in 1983: “Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

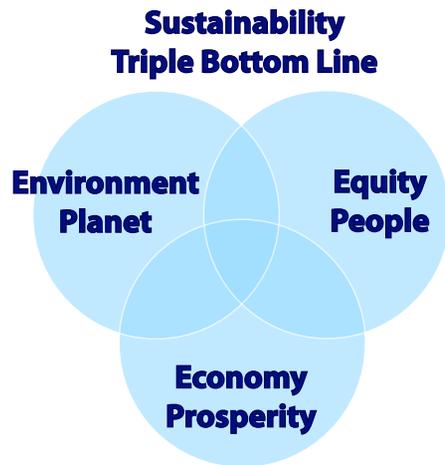
For many years, many investors, companies and theorists have suggested that financial performance, especially short time financial performance, is not sufficient to measure the success of a company or any public or private entity. In 1994, John Elkington coined the term “Triple Bottom Line” (TBL). The Triple Bottom Line is measured by financial, ecological and social performance.

Individual actions that are typically referred to as sustainable are all critically important (e.g., green buildings, recycling, water conservation, land use patterns, healthy downtowns, healthy communities, jobs, balanced budgets, and opportunity for all). Sustainability, however, involves a more holistic balancing and combining of three equally important goals, the “three Es” or the “three Ps.”

1. **Environment or Planet:** Conserving natural systems and minimizing ecological impacts. This is not a do-not-touch preservation concept but a conservation concept. Sustainable practices mean working with natural systems in a way that supports human activities (the other two Es or Ps), while allowing the natural systems to serve future generations. For many, environment can include both the natural and the aspects of the built environment that are important to preserve for future generations. Since it is inevitable that human activities will harm some natural systems, mitigation of such inevitable harm is part of sustainable practices.
2. **Equity or People:** Focusing on people and communities and their needs. This does not mean that every action benefits all people, an impossible goal. Sustainable practices however mean that we consider the needs of our communities in our actions and ensure that overall we are having a positive impact on our communities, especially including the diverse populations and sub-communities.
3. **Economy or Prosperity/Profit:** Creating on a vibrant economy, the creation of wealth, prosperity, and jobs. Balancing short term economic gains with the other two Es or Ps creates a long term vibrant economy, prosperity and profit for our cities, our businesses, and our people.

This sustainable and holistic systems approach helps create and maintain great and sustainable cities. For the Route 51 corridor, sustainability and the triple bottom line was the lens that the SDAT used in considering recommendations for a stronger future.

Sustainability is ever-present in today's vocabulary; indeed, it is in the name of this program (Sustainable Design Assistance Team). However, the term is often misconstrued, and has a variety of meanings for different stakeholders. Quite often, the focus is just on environmental benefits such as energy efficiency. Sustainability,



however, means providing solutions that are beneficial not just environmentally, but also economically and have a positive social impact. Sustainability must be an integral part of the traditional building sector, land use planning, green infrastructure and all other actions and policies.

Sustainable development goes far beyond energy efficiency. Our team's analysis focuses on a variety of issues, including site development, water use, energy efficiency, and quality of life/sense of well being. For example:

- **Site Development:** Site issues go far beyond where to locate a building or how frequently to allow curb cuts. Also included in site considerations are accessibility, connectivity to existing and planned communities, access to a variety of transportation options, parking issues, high performance landscaping, open space, habitat preservation and stormwater management. Solutions provided seek to address each of these issues, as well as to speak to the numerous concerns heard from members of the communities in this study such as flooding, traffic congestion, walkability, safety and recreation.

- **Water Use:** While the primary issue relating to water seems to be the excess of it during rain events, there are additional concerns that need to be resolved. Existing wastewater infrastructure is inadequate and the region is under a consent order to improve the situation. Areas of combined wastewater and sewer create dire environmental conditions in outflow areas during significant rainfall events. As such, the region will need to incorporate a wide-range of both supply and demand issues on the existing and future infrastructure. Reducing stormwater flow through a range of options including high-performance landscaping, bio-swales for infiltration, grading solutions, and stormwater capture from buildings (cisterns, green roofs, rain gardens, etc) will help reduce the overflow situations during rain events. Additionally, focusing on green building design and water efficient plumbing fixtures will reduce the generation of wastewater by 30-50% in new construction, and can reduce wastewater outflow from the existing building stock 50-70%.
- **Energy Use:** Energy use is often the first topic that comes to mind when the term green design is used, with just cause. While energy is not the only component, it is highly important and offers the benefit of direct and ongoing financial savings for years to come. Energy use covers not just electricity and natural gas for powering and heating homes and offices, but also the amount of fuel used to get to/from work while commuting down the Route 51 corridor. Solutions provided by this team will help facilitate traffic flow, reduce acceleration/deceleration (a primary cause of vehicle inefficiency), and increase mass transit ridership. All of these contribute to significant savings in fuel costs, automobile maintenance, and insurance costs. For the building environment, sustainable design can yield substantial savings. Green buildings reduce energy consumption by roughly 30% (on average) compared to non-green buildings. For renovation projects, these savings can be even greater.

- **Green development:** Green development includes energy and a range of other issues. Opportunities include having municipal governments adopt LEED (Leadership in Energy and Environmental Design) standards for their new construction projects (e.g., a new fire station under design and new Brentwood Municipal buildings). Simply focusing new municipal investment on Route 51 can help create nodes of development. While many Route 51 parcels are not ideal for traditional private sector development, they are ripe for public investment that would strengthen the community connection between Route 51 and the traditional town centers. Private development can be encouraged to incorporate green design features through expedited permitting, waived fees, or other incentives.
- **Quality of Life:** Quality of life and a sense of well being are less easy to measure than other concerns, such as flooding. However, many of the concerns expressed by local stakeholders are direct impediments to a higher quality of life. Sustainable design in this manner seeks to improve citizens' health and well-being by reducing congestion, improving safety, providing greater access to nature and recreational amenities, and even increasing the beauty of the built environment in the region. This includes measures such as facade improvements, litter removal, well-planned landscaping, and properly forecasted and planned future development. Many of the items discussed under site, water and energy contribute to the overall increased quality of life as they result in improved traffic flow, decreased flooding, better resident safety, and increased opportunity for both jobs and mobility.

Key Sustainability Opportunity-Current Retail Environment

The existing retail environment consists of a number of underutilized and under-maintained strip retail centers along Route 51, mixed in with fast food

establishments, service stations, and other forms of quick access retail. Additionally, a number of car lots (new and used) and vehicle support services exist. Big box retail development exists off of 51 at Pleasant Hills, featuring individual big box retailers, some strip centers, and Century III, a 1.2 million square foot enclosed traditional mall.

The current economic environment provides numerous challenges to this corridor - a paucity of new tenants, scarce capital for tenant or building improvements, and a lack of financing for new development projects. However, incorporating sustainable design into some existing projects can result in increased occupancy, higher rents, and an overall rise in asset value. Improving the facades and making some systems improvements will enhance the corridor visually and functionally. The following pictures are a representative sample of some of the strip retail existing conditions.





Fortunately, it has been demonstrated across the country that sustainable redevelopment opportunities exist for these centers and can yield a significant return on investment, while providing enhanced environmental and social atmospheres. The following pictures are from Abercorn Common shopping center in Savannah, GA. The original conditions (seen below) mimic what



is seen along the Route 51 corridor. However, after undergoing facade and in some cases mechanical/electrical improvements, a breathtaking change was realized. The following images show the post-renovation conditions that are currently in place for a shopping center that went from 50% occupied to 90%



in a matter of a few short years, while also creating a pedestrian oriented shopping environment that has become a regional destination. Abercorn Common incorporated many sustainable



design principles that could be utilized in any redevelopments along the Route 51 corridor that would help a number of problems identified by the stakeholder groups. For example, Abercorn Common features a cistern that collects 5 million gallons of stormwater annually and provide 100% of the site irrigation. Porous concrete allows stormwater to infiltrate naturally, again reducing flooding and runoff. Building water consumption was reduced by 50%, while lighting and HVAC improvements cut electricity use 30%.



Century III Redevelopment Opportunity

Century III Redevelopment Opportunity

The 1.2 million square foot Century III mall has been a regional draw for many years. Currently, the mall faces a host of issues, including negative public perception, increasing occupancy and an overly competitive retail market. While there are still very strong anchor stores as well as dozens and dozens of existing retailers, the site, with its size, location and amenities, lends itself well to a proposed redevelopment opportunity. The following proposal recognizes that this Simon-owned property does have useful life left, and has rejuvenation potential.



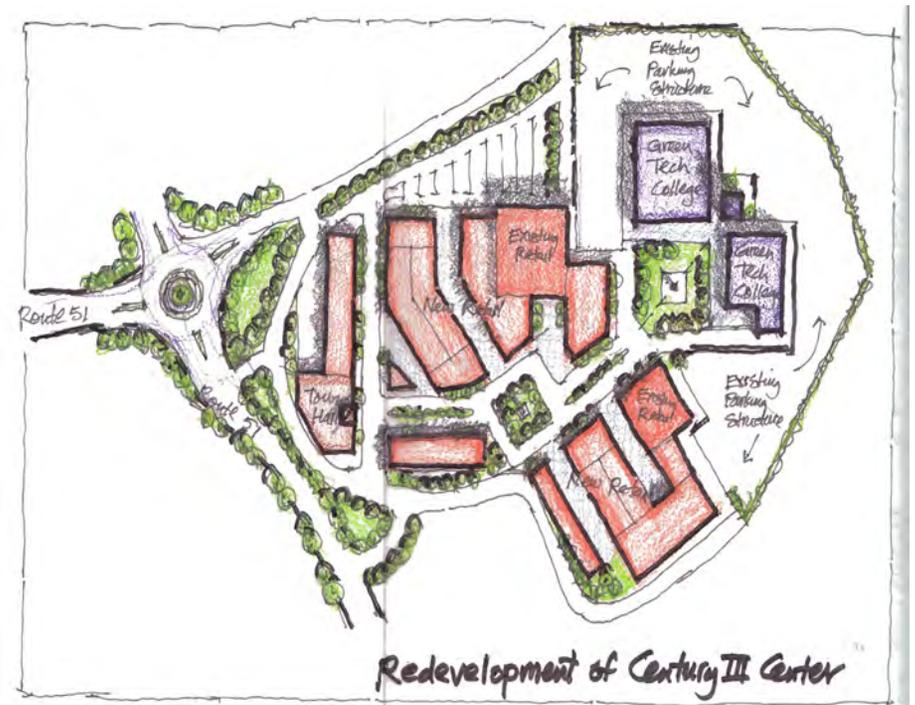
The proposed future project calls for maintaining the successful long-term leased properties of the big box retailers while implementing a phased redevelopment to

replace the traditional closed mall property with an open air, pedestrian oriented town center featuring the existing structured parking, green space, and a broader mix of retail, restaurant, and office uses. Similar programming can be found in the waterfront redevelopment in Homestad, PA.

The proposed sustainable redevelopment fits within the current uses (this area is by far the best suited for big box retail in this corridor), utilizes existing parking infrastructure, and re-establishes this site as a true regional draw. The proposed project creates a dedicated park-and-ride center, and the town center maintains vibrant life during the day and at evening. This continuous activity reduces the opportunity for crime, while the providing citizens a central district to shop, dine, and recreate in a safe, comfortable environment.

This redevelopment would result in enhanced mobility with an increased access to transit services, additional job opportunities, a higher tax basis for the community, and a significant decrease in stormwater runoff through the addition of greenspace and the reduction of impervious surface.

In summary, there are numerous sustainable redevelopment opportunities along the Route 51 corridor that can yield significant benefits. Owners will see enhance rental rates, higher occupancies, and thus enhanced asset value. Tenants will benefit from higher traffic, shared customer bases, lower operating costs, and additional sales. The community benefits from increased mobility, additional jobs, and better infrastructure.



Redevelopment of Century III Center
Retain retail that works while transforming the site into a village center node.

SUSTAINABLE TRANSPORTATION

Jason Schrieber

Sustainable Transportation

Transportation corridors represent many different experiences to the many different users that use them. To many commuters, a transportation corridor is experienced frequently but quickly – a routine passage where attention to detail is lost in the repetition of another often-congested commute. Others may look at the same corridor as the front door to their home or business – a point of arrival or departure that contends with the multitudes passing by. Many must engage such corridors more regularly on foot, finding a sense of place – or lack thereof – along a portion of it. Transportation businesses rely on such corridors for commerce, and local businesses depend on them for safe and efficient access to markets and customers. Meanwhile, a great many travelers engage the corridor not along its axis but across it – often finding the corridor to be a regular barrier that must be crossed.

Route 51 shares all of these experiences along its entire length from West Elizabeth to the Liberty Tunnels. It is an essential commuter connection for many from the South Hills and beyond – both by car as well as by transit. It is home to dozens of businesses and residences that require easy access to its heavily-used travel lanes. Many patrons of these businesses and residents along Route 51 need to travel by foot along and across it, wearing paths where sidewalks don't exist and occasionally populating its few crosswalks en-route to transit stations and other destinations. The



long-standing emphasis on commercial activity corridor-wide is clear, and Route 51 remains a vital link for business and commerce south of downtown Pittsburgh. It is also a substantial barrier for many surrounding neighborhoods, serving to isolate many.

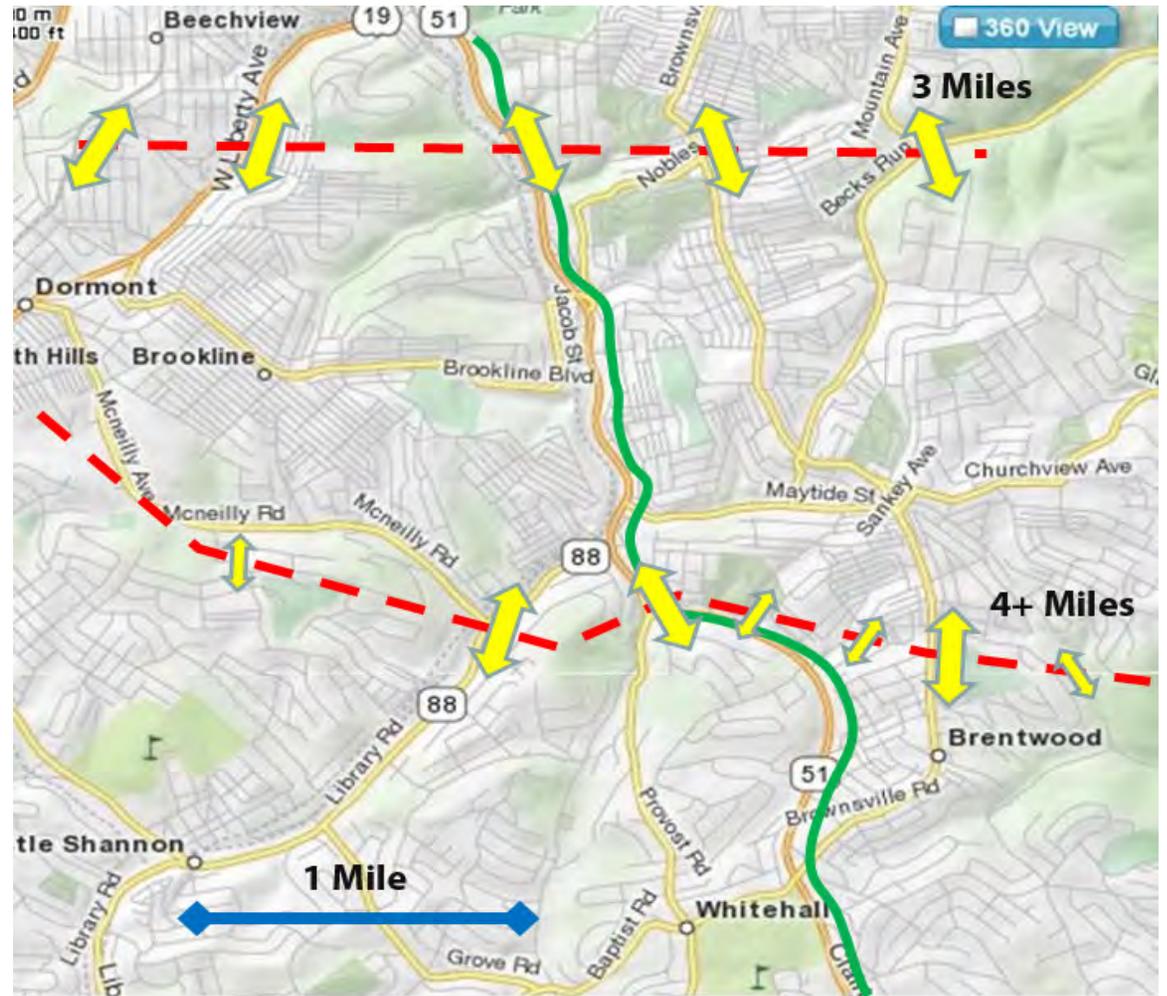
Transportation corridors are regularly misconstrued as linear pipelines, and planning emphasis is frequently focused on moving as many people as quickly as possible along those pipelines. However, most corridors like Route 51 are not a single conduit – they are a series of different places with different characteristics serving people on, along, and crossing the corridor. Route 51 is not simply seven municipalities. It is a gateway to one of America's great cities; a post-industrial parkway of Pittsburgh; a place to buy cars; a place to grab a quick bite; an access to local ballfields; a restaurant destination; an active cross-roads; a transit portal; the front door to a town center; a home to civic resources and schools; a shopping center; and a center for healthcare. Each of these places means a different set of users than those simply traveling from end to end, creating a discernibly more complex set of travel patterns than a similar corridor in a less urban location might experience. Route 51 is an essential part of life for thousands of Pittsburgh area residents, and it is therefore an essential transportation corridor that must be preserved and maintained to serve all of its users.

Route 51 Today

Even with so many differing trip purposes, the surrounding topography means that most will need to travel north-south along Route 51 for a portion of their trip.

As a result, the Pennsylvania Department of Transportation has worked to maintain north-south vehicle capacity for years. While this has been challenging with the number of local businesses and their associated curb cuts that line the corridor, movement is rather efficient given the narrow right-of-way that the State maintains – often less than 50-feet from curb to curb. With center turning lanes over the majority of the corridor, Route 51 handles over 40,000 cars per day at most points along the roadway. Significant intersections are relatively compact and handle many crossing moves quickly, enabling the mainline to move well. Some intersections have turn lanes or ramps that help process more cars easily.

Transit users benefit from a number of stops along the corridor, and – in the Pittsburgh section – have the luxury of a separated busway as well as a light-rail line, each with fast connections into downtown Pittsburgh. This corridor is one of the best performing transit corridors in the County, and buses are regularly filled to capacity during commute hours.



Dispersing traffic across many roadways is the best method of relieving congestion, and cities with blocks as short as 200-feet see the lowest intersection delays and highest vehicle throughput. In contrast, Route 51 is one of only five north-south connections along a three-mile line between Dormont and Becks Run Road – or an average block length of over 3,000-feet. Along a four-mile line between Dormont and Brentwood, there are only three significant connections that effectively create blocks over a mile long. This poor connectivity means that local traffic must funnel onto the few north-south connectors, of which Route 51 is the largest and most burdened.

| Rank | Place | 2000 Census | | | | | 1990 Census | | | | | | |
|------|---------------------------------------|-------------|--------------------|-------|--------------------|---------------------|------------------------|------------|--------------------|-------|--------------------|---------------------|------------------------|
| | | Population | % of Commuters Who | | Use Public Transit | Don't Drive To Work | % Households w/o a car | Population | % of Commuters Who | | Use Public Transit | Don't Drive To Work | % Households w/o a car |
| | | | Bike | Walk | | | | | Bike | Walk | | | |
| 1 | New York city, New York | 8008278 | 0.48 | 10.72 | 54.35 | 65.55 | 55.70 | 7322564 | 0.31 | 10.95 | 54.77 | 66.03 | 55.87 |
| 2 | Washington city, District of Columbia | 572059 | 1.21 | 12.27 | 34.47 | 47.95 | 36.93 | 606900 | 0.78 | 12.18 | 37.73 | 50.69 | 37.41 |
| 3 | Boston city, Massachusetts | 589141 | 0.99 | 13.36 | 33.07 | 47.42 | 34.91 | 574283 | 0.89 | 14.28 | 32.25 | 47.42 | 38.32 |
| 4 | San Francisco city, California | 776733 | 2.08 | 9.82 | 32.64 | 44.54 | 28.56 | 723959 | 0.99 | 10.23 | 34.84 | 46.06 | 30.70 |
| 5 | Newark city, New Jersey | 273546 | 0.22 | 8.03 | 26.81 | 35.06 | 44.17 | 275221 | 0.23 | 8.42 | 24.83 | 33.48 | 44.34 |
| 6 | Chicago city, Illinois | 2895964 | 0.51 | 5.80 | 26.71 | 33.02 | 28.85 | 2783726 | 0.28 | 6.55 | 30.22 | 37.05 | 34.35 |
| 7 | Philadelphia city, Pennsylvania | 1517550 | 0.87 | 9.22 | 25.92 | 36.76 | 35.73 | 1585577 | 0.57 | 10.56 | 29.21 | 40.35 | 38.10 |
| 8 | Pittsburgh city, Pennsylvania | 334563 | 0.45 | 10.01 | 20.98 | 32.18 | 29.44 | 369879 | 0.42 | 12.85 | 22.59 | 35.88 | 34.83 |
| 9 | Baltimore city, Maryland | 651154 | 0.34 | 7.28 | 19.94 | 27.56 | 35.89 | 736014 | 0.25 | 7.57 | 22.40 | 30.22 | 38.35 |
| 10 | Seattle city, Washington | 563375 | 1.97 | 7.72 | 18.44 | 28.13 | 16.32 | 516259 | 1.55 | 7.53 | 16.51 | 25.59 | 16.74 |
| 11 | Oakland city, California | 399477 | 1.27 | 3.89 | 18.18 | 23.34 | 19.62 | 372242 | 1.14 | 5.05 | 18.56 | 24.75 | 23.30 |
| 12 | Atlanta city, Georgia | 416629 | 0.33 | 3.64 | 15.61 | 19.58 | 23.58 | 394017 | 0.29 | 3.84 | 20.44 | 24.57 | 28.56 |
| 13 | Minneapolis city, Minnesota | 382452 | 1.96 | 6.85 | 15.07 | 23.88 | 19.70 | 368383 | 1.65 | 8.10 | 16.53 | 26.28 | 22.86 |

Pittsburgh ranks eight among the U.S. cities with the highest percentage of commuters using transit – well ahead of peers such as Cleveland and Indianapolis and better than bigger “transit-friendly” cities such as Baltimore and Seattle.

Needs of the Corridor

The heavy burden on Route 51 has taken its toll over the years, with much of its physical infrastructure stressed and failing at times. Very few opportunities to expand roadway capacity have existed – especially given the proximity of abutting land uses along the entire corridor. The grade-separation of Route 51 at the Liberty Tunnels is the only expansion project of significance in decades until flooding issues required improvements at the Route 88 intersection that may relieve congestion at

this bottleneck. PennDOT has continuously tried to keep up with the ongoing maintenance needs of the aging roadway through resurfacing, new markings, signal improvements, etc. However, the general appearance and function of Route 51 has changed little. Unfortunately, the number of new driveways has grown steadily,



A worn path where a sidewalk is missing.

creating an unending stretch of entering and exiting traffic conflicts along most of the corridor. These frequent curb breaks impact vehicular safety as well as pedestrian & bicycle safety. The heavy traffic –coupled with constant vehicle turns across the few sidewalks– has created a very threatening environment for anyone on foot or bike.

Auto-dominance has created a cycle of neglect for non-motorized modes with few sidewalks, fewer crosswalks, almost no pedestrian signalization, and zero bicycle facilities.

Nonetheless, the corridor is surrounded by residential neighborhoods full of people who access local businesses on foot or ride transit running along the corridor. As a result, worn footpaths are frequently seen, and bus stop waiting areas are often well-worn – even though very few bus shelters exist on the corridor.



A new bus shelter near the intersection of Route 88.

Where access to the busway or light rail is provided, paths and bridges are often narrow or poorly signed. Pedestrian-scale lighting is non-existent, making many

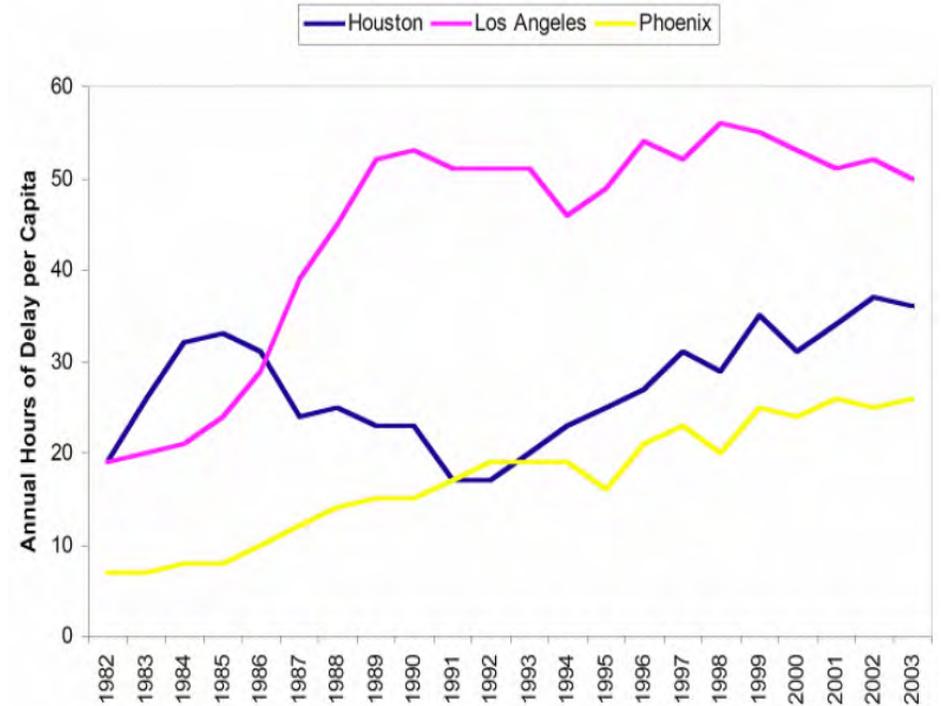


One of several narrow accessways running from transit stops on Route 51.

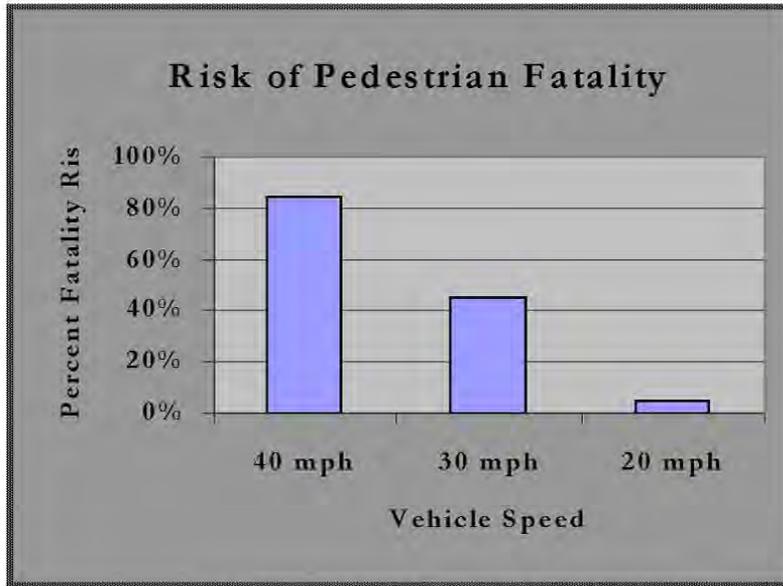
walking routes very threatening after sundown.

As regional traffic volumes have slowly increased, key bottlenecks have seen worsened delays on and crossing Route 51 – particularly at Route 88 in Pittsburgh and Brownsville Road in Brentwood. The upcoming PennDOT improvements at Route 88 may finally help to alleviate this bottleneck – though more could be done, as discussed below.

Many have long argued that PennDOT should take properties and widen Route 51 to create a more modern limited-access highway to relieve congestion. However, PennDOT has correctly recognized not only the extreme cost of miles of land-takings but the reality that an expansion would have an enormous impact on an already strained floodplain that sees damaging events every few years. More importantly, PennDOT recognizes that new capacity will not alleviate congestion for more than a few years. Reserve roadway capacity is an attraction to new trips in metropolitan areas, and the experience of American cities continues to prove that building our way out of congestion is not possible.



The desire to widen Route 51’s travel lanes could worsen the threatening pedestrian environment that is present today, helping to prevent more active uses from succeeding in the corridor. Much new thought in traffic engineering has recognized that narrower lanes can handle just as much volume as wide lanes but serve to “calm” traffic speeds, which has an immediate reduction in crashes and fatalities. Similarly, smaller compact intersections can process as many cars as those with multiple turn lanes if operated on a shorter cycle that permits a more efficient processing of car and pedestrian movements. These compact intersections experience no real increase in average vehicle delay but reduce the number of opportunities to “sail through” on a green light.

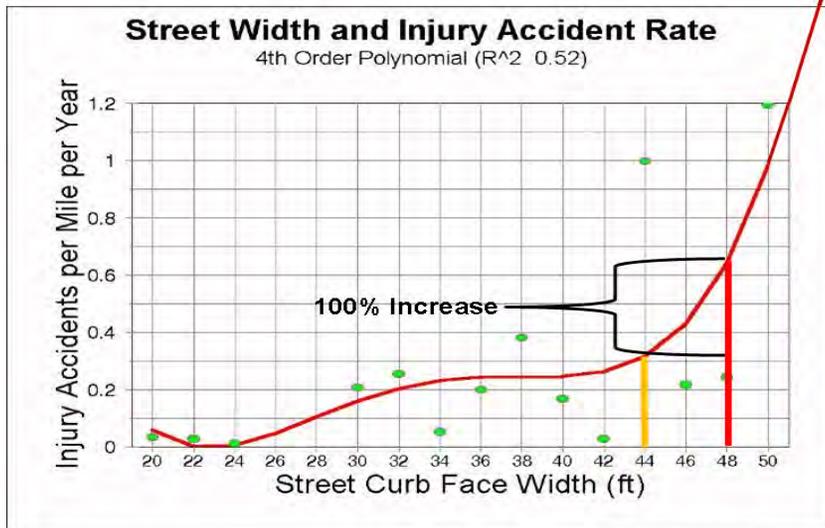


Leaf, W. and Preusser, D. Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups, NHTSA (USA), 1999.

Possibilities for a Community Corridor

As threatening and unwelcoming as Route 51 may be today, its constrained right-of-way, multitude of abutting users and neighborhoods, untapped transit resources, and amazing topography are not too dissimilar from many of the greatest corridors in America with similar constraints, such as California's Embarcadero, Seattle's Alaskan Way, or Boston's Massachusetts Avenue. Each of these roadways carry volumes in excess of Route 51 on similarly-constrained rights-of-way through often challenging topography. Yet all possess an amazing variety of places along them that interact with each other and their regions successfully.

Route 51 can become a corridor that unites places along its route, bridging gaps in the South Hills, and becoming a new front door for many users who traverse it daily: its value as a greenway with lush hillsides and a gushing streambed remains untapped; its presence as the "Main Street" for nodes along its length can be resurrected; the latent potential to make Route 51 a pedestrian-friendly destination requires simple fixes to reintegrate the many neighborhoods only a stone's throw away; and its ability to convey a desirable address for businesses can blossom. Central to the resurgence of this corridor is recognizing that it is not just a pipeline but the glue that binds many communities and many users. With great connections and superior transit service, Route 51 can become a destination from which people can walk, bike, recreate, and interact, as opposed to a utilitarian conduit experienced as briefly as possible. By focusing on the different places or nodes along the corridor as opposed to the roadway itself, traffic can actually be calmed and lessened while building new



Street widths and injury accident rate, graphic by Peter Swift

Four 11-foot travel lanes without a turn lane will produce about 0.3 injury accidents per mile of roadway per year. Simply widening the roadway cross-section with 2-foot shoulders to 48-feet (the narrowest that Route 51 is today) increases crash rates 100-percent. Adding a center turn lane increases this by over 500-percent.

connections to abutting communities – encouraging the types of local trips that lessen regional traffic growth, bridge neighborhood gaps and bring customers to merchants, visitors to residents, and neighbors to play.

A Transportation Tool Box for Route 51

While a large number of interventions are needed along Route 51 to improve safety and afford the opportunities that reconnect neighborhoods and draw pedestrians to the corridor, there are four primary strategies that should guide future improvements to the corridor:

- Developing a Greenway. Often overlooked, the Route 51 corridor is an ecological resource with heavily grown valley walls throughout and streams carrying flows from much of the South Hills to the Ohio and Monongahela Rivers. Preserving & converting portions as a greenway will help alleviate flooding problems, especially by removing excess paved areas and abandoned buildings. The entire corridor also should integrate a regional multi-use path that allows interaction with environmental resources while creating a needed pedestrian and bicycle connection between the seven communities in the corridor.
- Local Congestion Relief. Numerous intersection improvements alone will not address congestion adequately without a reduction in the number of turning movements into parcels along the sides of Route 51. A clear access management program is needed to limit parcel access and reduce redundant access points as much as possible, helping to limit the number of conflict points.
- Efficient Intersections. Where Route 51's compact intersections can't provide sufficient capacity, the best form of capacity enhancement (and one of the safest intersection designs available) is the modern roundabout. At key locations, roundabouts would help increase capacity, reduce speeds, increase safety, & provide clear gateway elements that define the many places along the corridor.

- Pedestrian Protection. As opposed to past designs that sought to either separate pedestrian movements on bridges or create full-stop conditions with pedestrian push-buttons, modern traffic engineering for pedestrians has recognized that people will ignore these time-consuming interventions and cross a street intelligently at obvious gaps or parallel to car movements. Enhancements that facilitate this greatly increase walkability and include treatments such as crossing islands, a leading pedestrian signal interval, and countdown signals.

These four broad strategies underlie the proposed cross-sections for Route 51 from the Liberty Tunnels to West Elizabeth.

A Vision for Route 51: Changing Cross-Sections

Beginning a future journey southward along Route 51 at the Liberty Tunnels would quickly encounter a new gateway for the corridor – defined not by large transportation infrastructure but by an inviting entry sign with landscaping on Route 51's median at its first intersection



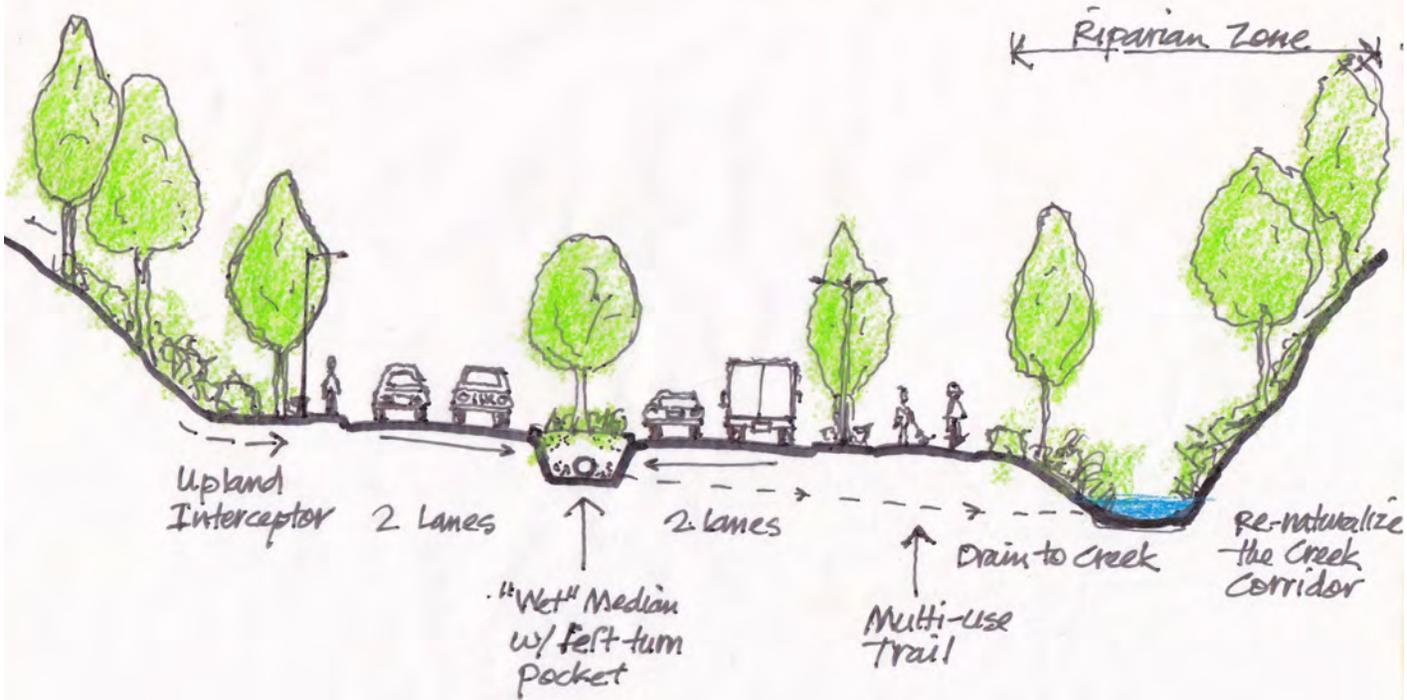
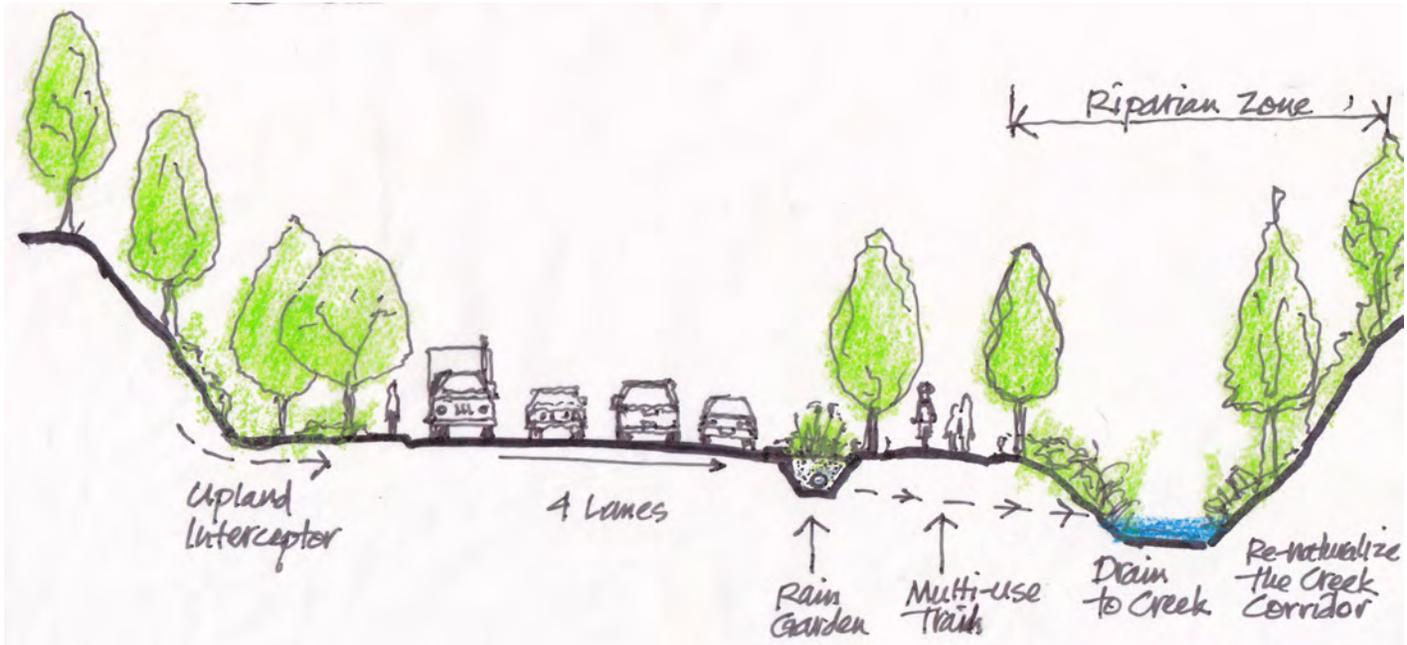
Photo by Dan Burden

at Bausman Street. This treatment also serves as a signalized pedestrian crossing island to improve connections from Bausman's playing fields and tennis courts across Route 51 to a proposed multi-use path and the beginning of the Route 51 greenway. It also serves to calm approaching traffic in a stretch of roadway that experiences high rates of speed today.

The Route 51 Greenway

From this point southward for over two miles, Route 51 has been transformed into a green parkway where derelict properties and abandoned parking lots have been restored to their natural conditions, allowing greater flood storage and groundwater recharge capacity. The cross-section of the roadway does not widen – rather, most local driveways have been removed, helping to move traffic more easily on four lanes that are interspersed with occasional planted medians placed before turn-pockets and crossing islands.

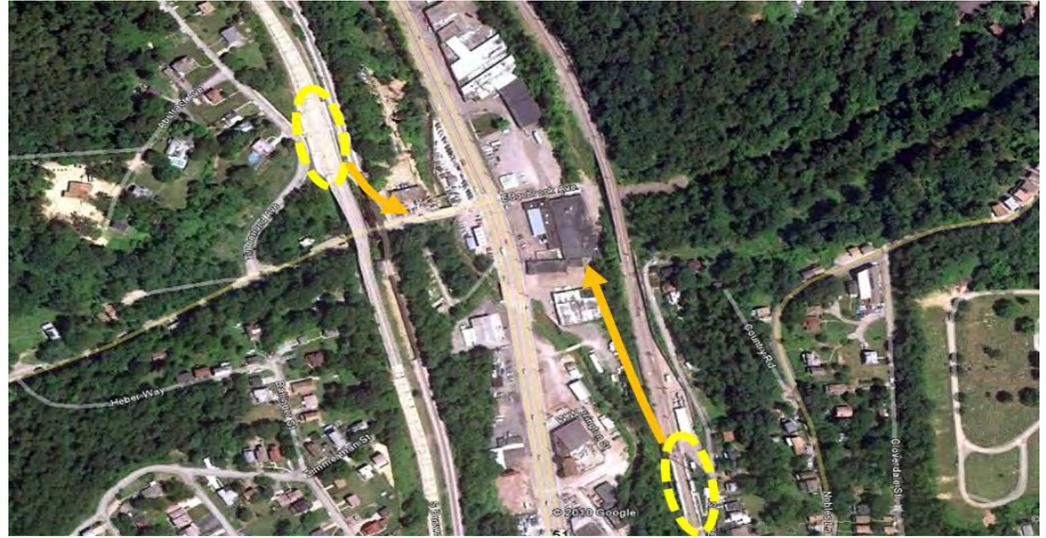




Transit-Oriented Nodes of Pittsburgh

Development in this stretch has been concentrated at three transit-oriented nodes, rather than spread across the valley floor. The first node concentrates new housing and retail at the intersection of Edgebrook Avenue. This location has several distinct advantages that provide a substantial benefit to the surrounding neighborhoods:

- Edgebrook Avenue is a direct connector to the commercial core of Brookline, which acts as an attraction for new residents at this point on Route 51.
- Due to the steep valley walls in this location, development parcels can achieve greater heights with no impact on surrounding parcels. This density not only makes projects financially viable but it represents an ability to replace almost all of the single-story floor area along a large stretch of valley floor at a concentrated site.
- This location is directly served by a busway station to the west with an existing walkway under the intervening freight rail line connecting to Route 51.
- Parcels on the east side of Route 51 present an opportunity to bridge the barrier that Route 51 creates in this stretch. A steep grade prevents Edgebrook Avenue from continuing to the east. Atop this grade is the light rail line, including a station that serves the neighborhood to the east but lacks any connection to the west. With greater height, a new building could be directly connected to the light rail station and provide a simple walking connection to the stub end of Edgebrook Ave., bringing rail transit access to any new development at this node.



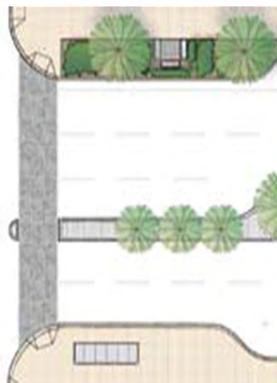
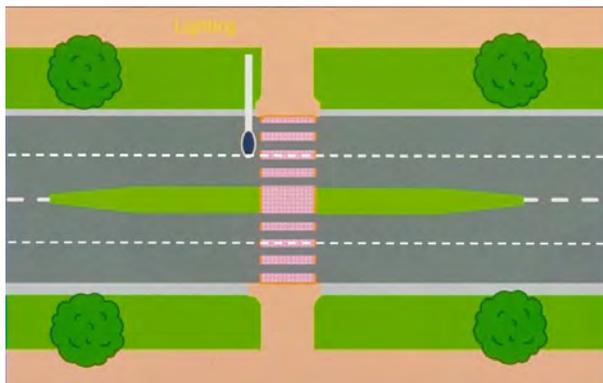
These three parcels at Edgebrook Ave. enable a double-loaded residential product with a “U” configuration surrounding elevated courtyards facing away from Route 51 traffic. Ground floor retail could be located in slightly upslope locations above the floodplain with parking occupying the remaining ground floor area. New medians and pedestrian crossings define the intersection, supported by restored open space along the stream. Direct walking connections are made to both busway and light rail stations.

A second node would occur on the west side of Route 51 at Whited Street within a triangular parcel bound by Whited, the light rail, and the freight rail line. At this location (which is above the floodplain), residents would have direct access to a busway and light rail station within a short distance of Brookline and Carrick's commercial cores.

The third transit-oriented node in this stretch involves the reuse of the Central School as a live-work complex with its own dedicated busway stop, if a new stream bridge can be constructed. This connection – combined with the school's existing pedestrian underpass of Route 51 – would complete a new walking connection between Brookline and its Memorial Park to the west and Carrick, its high school, and Philips Park to the east.

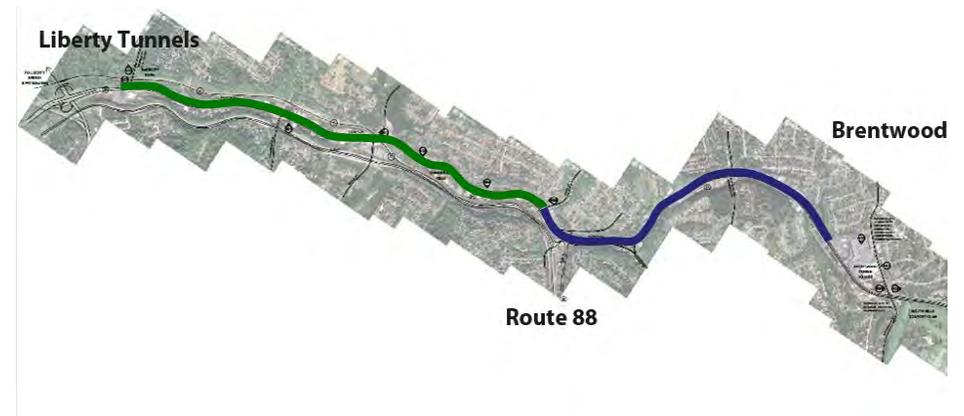
Crossing the Parkway

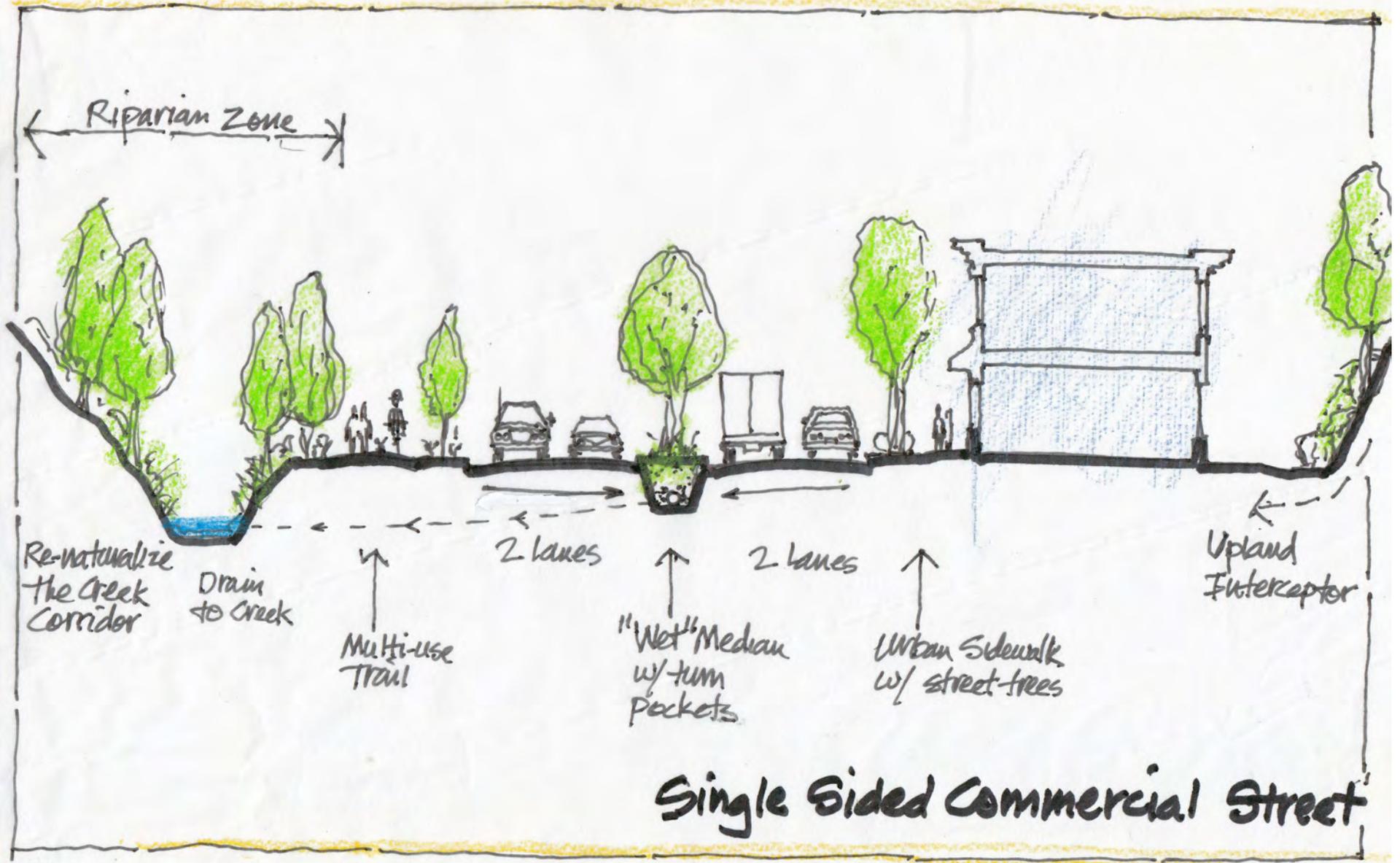
Much like the gateway treatment at Bausman Street, each transit-oriented node – as well as the busway connection at Dartmore Street – would incorporate a pedestrian crossing island in the median protecting each intersection's turn lane pockets.



A Commercial Gateway to Brentwood

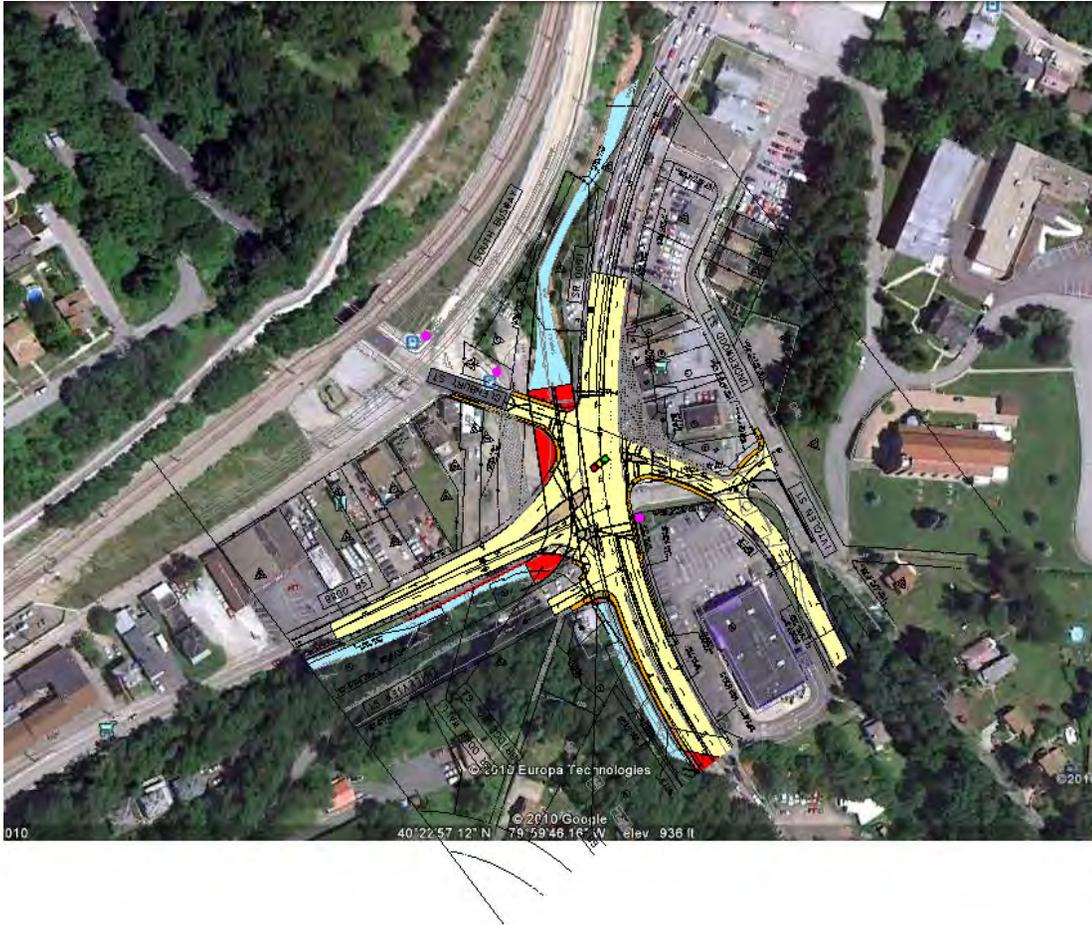
Beginning north of Route 88 at Overbrook Boulevard, the future Route 51 corridor begins to reveal commercial development at the confluence of the several neighborhoods and transportation corridors. Beginning at this point and carrying south up the hill to Brentwood center, the roadway cross-section gives way to buildings on one side – mostly opposite the stream. Along the stream continues the multi-use pathway, helping to extend the greenway in an area where commercial development exists. Access to this development from Route 51 is provided by a series of center turning lanes cut out of a continuous planted median.





Intercepting Trips: A Transit-Oriented Node with Park & Ride

The intersection of Routes 51 and 88 is planned for a significant improvement by PennDOT in 2011 to alleviate flooding problems as well as traffic congestion. The traffic improvements mostly derive from a pair of new “jug-handle” roads that move left turns to a crossing road. This treatment eliminates excessive mainline road width while handling more turning cars than turn-pockets could.



The congestion relief of this design is felt along both route’s mainlines, but especially for those taking the jug-handle lefts, which would clear in as little as one light cycle during the morning rush hour. Unfortunately, the current design does not give this same advantage to Port Authority buses on

Route 51, which must still make a left onto Glenbury Ave. to access the busway. Those on Route 88 continue to make two lefts to get to the busway, contributing to transit delay.

The Glenbury Ave. leg adds a fifth approach whose delay is not significantly reduced by the jug-handle. However, removing this approach would have a dramatic effect on this regional bottleneck:

- By moving Glenbury westward to intersect Route 88 as opposed to Route 51, the operation of Route 51 & 88 becomes very efficient and capable of greater volumes. The intersection can become compact, enabling quick pedestrian crossings and short clearance intervals.
- Relocating the busway entry to Route 88 notably improves bus service on Route 88. By using the jug-handle, Route 51 buses are also significantly benefitted by avoiding queues on the mainline as well as the left across it.
- The time-saving benefits that can accrue to buses can also accrue to vehicle commuters who seek to park and ride the bus into downtown. The new circulation pattern intercepts trips before they hit the congested approaches at the intersection of Routes 51 and 88.
- Given the proximity of light rail service, a new light rail station is appropriate, along with a relocated busway station west of Glenbury. The site becomes a significant intermodal location with a notable park and ride component.



With Glenbury removed from the Route 51 & 88 intersection, buses and park & ride commuters can avoid the congested approaches (yellow lines) and interface with a new light rail station (green platforms) via a multi-level intermodal station that effectively extends the busway beyond the congestion point. While Glenbury would be restricted to right-in and right-out only, access via the busway and a new roundabout would preserve full access in a manner that avoids a second nearby signal on Route 88.



A notable benefit of the relocation of Glenbury Ave. is the creation of a new significant building parcel at a prime location clearly visible from both Route 51 approaches. Glenbury itself becomes a new “Main Street” for this transit-oriented node with ground floor retail in the new parcel as well as the ground floor of the intermodal station. Joint development above the park and ride garage would give new residents unparalleled transit and roadway access, and corresponding development across the new compact mainline intersection would create a transit village at this gateway to Brentwood.

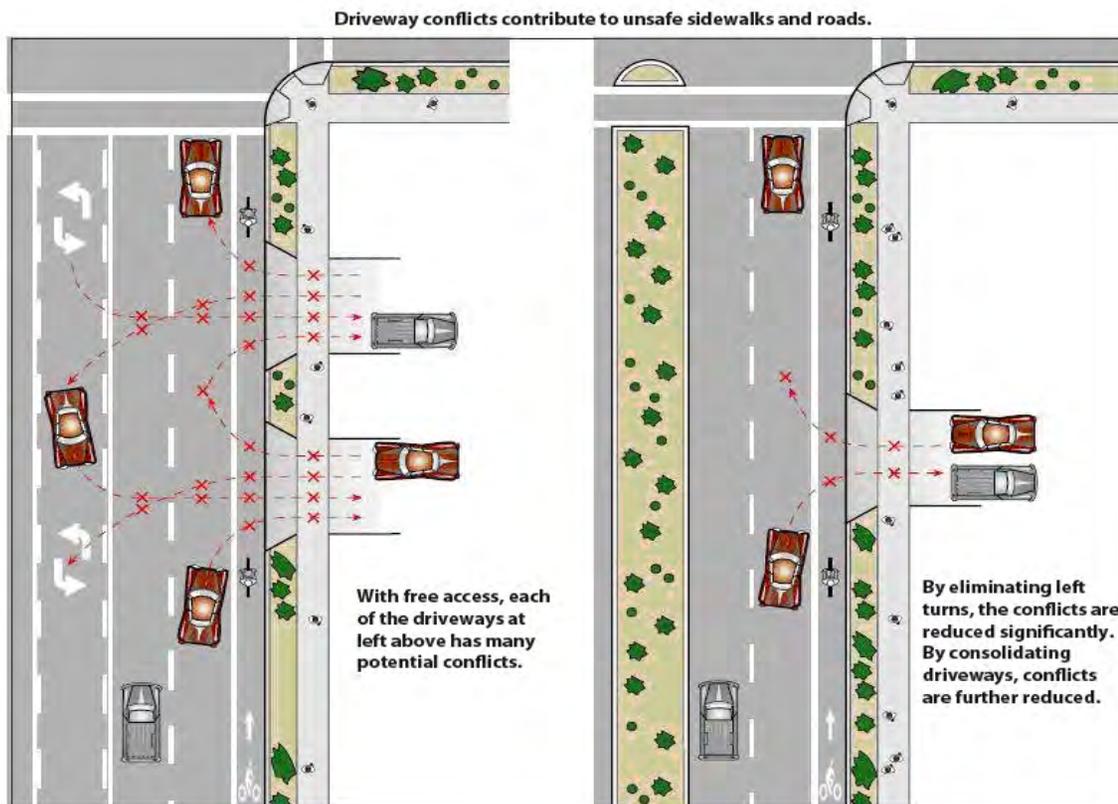


Two new joint development parcels are realized with Glenbury Ave.'s realignment, forming the heart of a new transit-oriented node. Local circulation to the east and northeast could easily be integrated into a more grid-like pattern, and shared surface parking could be placed between buildings, enabling the elimination of space-consuming front-yard parking. Additional “tuck-under” parking could be placed below buildings, resulting in stoop entries that take tenants above the ground plane of passing traffic.

Access Management

A critical component of reducing congestion and improving corridor safety will be better managing the access to individual parcels along Route 51. Strong access management policies will be needed throughout but especially in more active commercial zones such as that approaching Brentwood town center from the north.

There are two basic forms of access management that apply in this corridor. The first seeks to limit potential turning movements through interventions in the public right-of-way that restrict the locations that left-turns can be made into or out of private parcels. Typically, this is done with a median that includes a limited number of turning pockets.

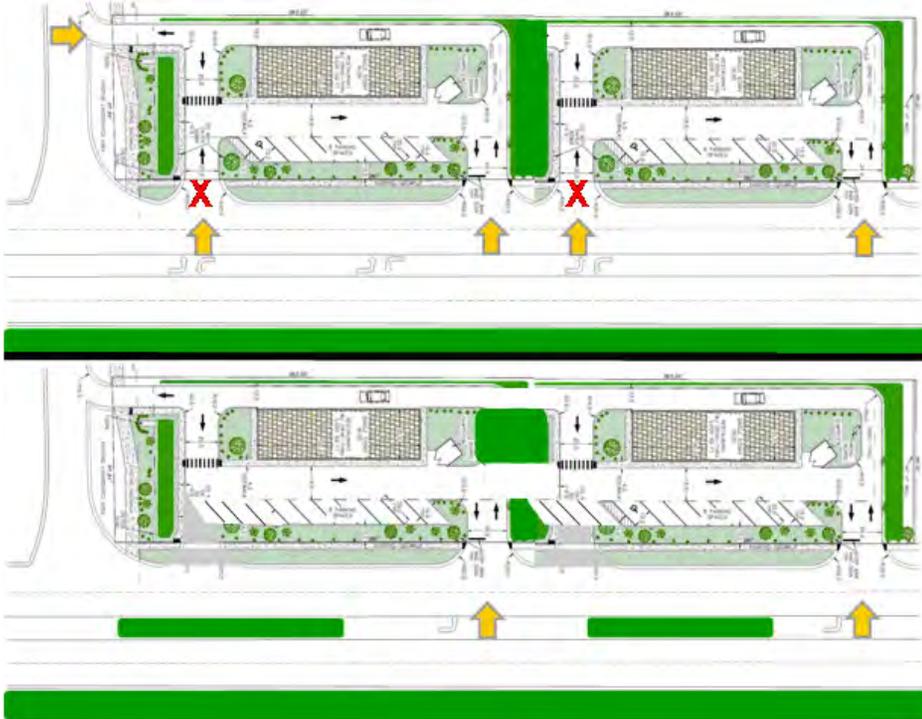


A second form of access management requires that private landowners agree to close redundant curb cuts, similarly limiting the number of opportunities for left-turns – as well as right-turns. For many, consolidating access across adjacent parcels can have notable improvements in congestion and safety while creating more area for productive on-site uses.

The benefits of good access management can be notable:

- Reduced left-turn crashes
- Reduced delays from left-turners
- Improved pedestrian & bicyclist safety
- Expanded on-site development opportunities
- New landscaped roadway medians

However, a large degree of zoning flexibility is necessary to allow property owners to consolidate access across parcels without losing development rights. Many will need to be educated about the ease with which access easements and liability protection can be arranged.



Where two abutting parcels may resist losing half of their curb cuts, a new connection between these parcels allows each to retain two access points while increasing the available land for on-site parking by eliminating redundant circulation aisles.



When parcels are near an existing roadway, internal access driveways can allow the elimination of all mainline curb cuts – and each eliminated cut means more opportunity for on-site parking expansions.

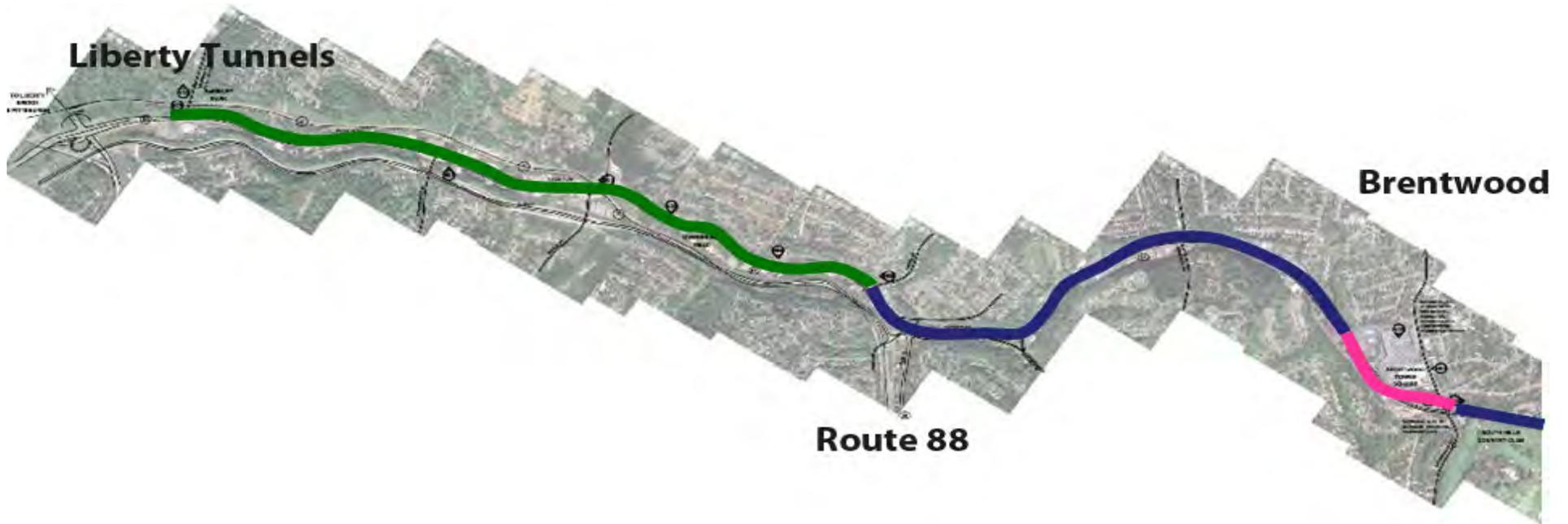


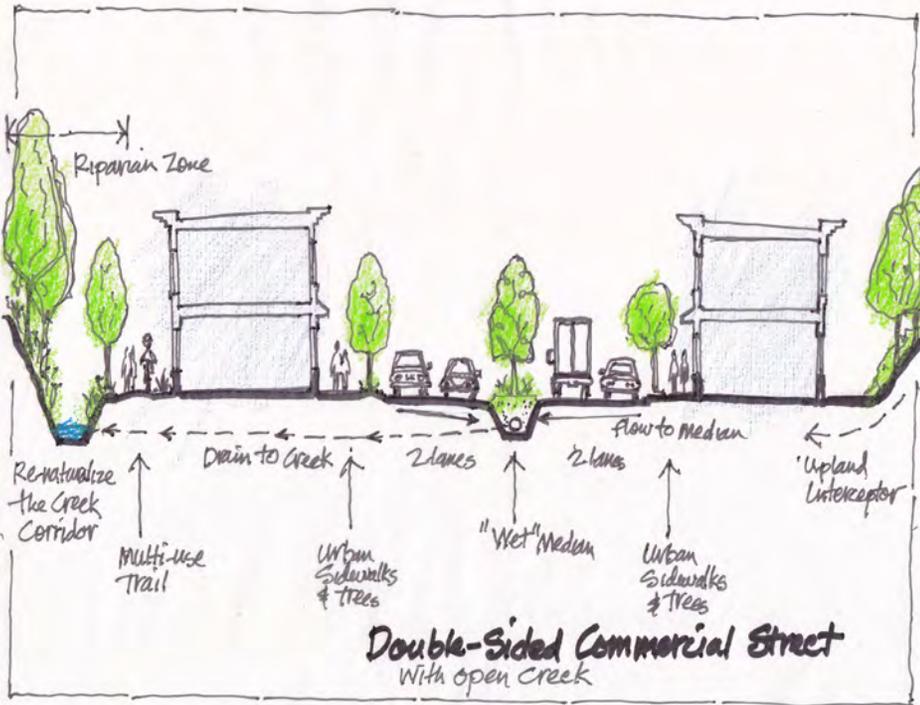
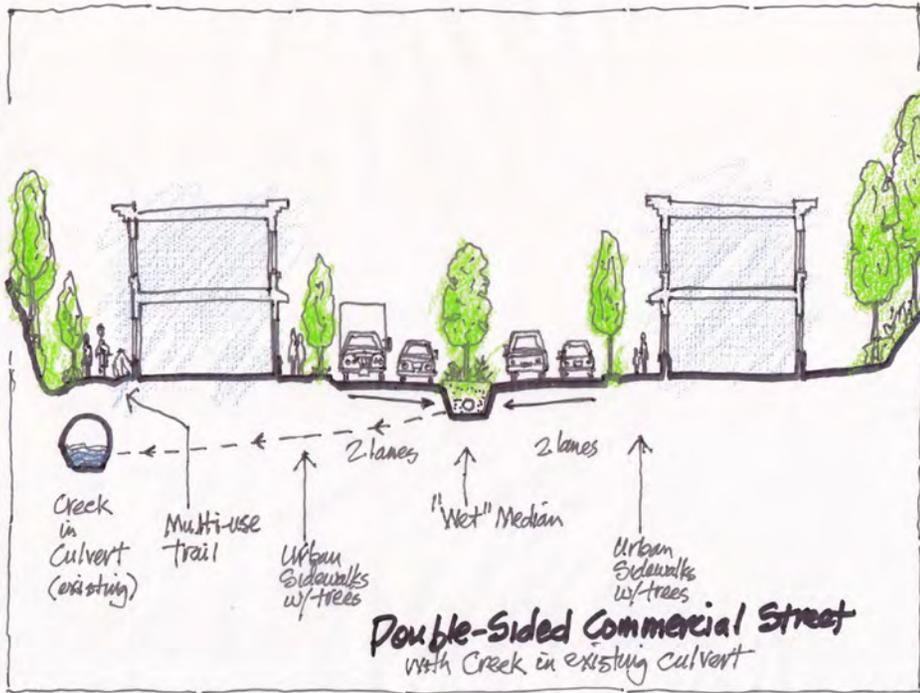
This image is typical of retail frontages along Route 51, where often there is no curb elevation to separate road traffic from private circulation. Simple access management changes would create a far more attractive roadway that preserves full access to businesses.



Town Centers and Retail Destinations

Continuing south along the future Route 51, we encounter Brentwood town center, one of the more active nodes along Route 51. Beginning here and continuing southward, Route 51 sees development on both sides, and the roadway cross-section reflects this. Notably, it also includes wide sidewalks, pedestrian scale lighting, protected crossings at turning lanes, and the continuation of the multi-use pathway along the Route 51 greenway.





These treatments are particularly valuable near the existing mixed-use center of Brentwood to help diminish the barrier the highway represents. With signalized pedestrian crossings installed at the traffic signals for Brownsville Road and Towne Square way, development on the west side of Route 51 can be weaved into the existing town center successfully. An additional attraction west of Route 51 at the town center would be the construction of a municipal building that also provides some park and ride parking. Similar to other nodes along the corridor, this location would be benefitted by greater height allowance and less parking requirement.

South of Brentwood, Route 51 becomes a significant commercial corridor with dozens



of restaurants, multiple services, and many shopping opportunities. Existing buildings are prevalent on both sides of the roadway, and a future vision would require that the greenway's multi-use path be weaved behind buildings carefully. A number of safety improvements could be made in this stretch, including:

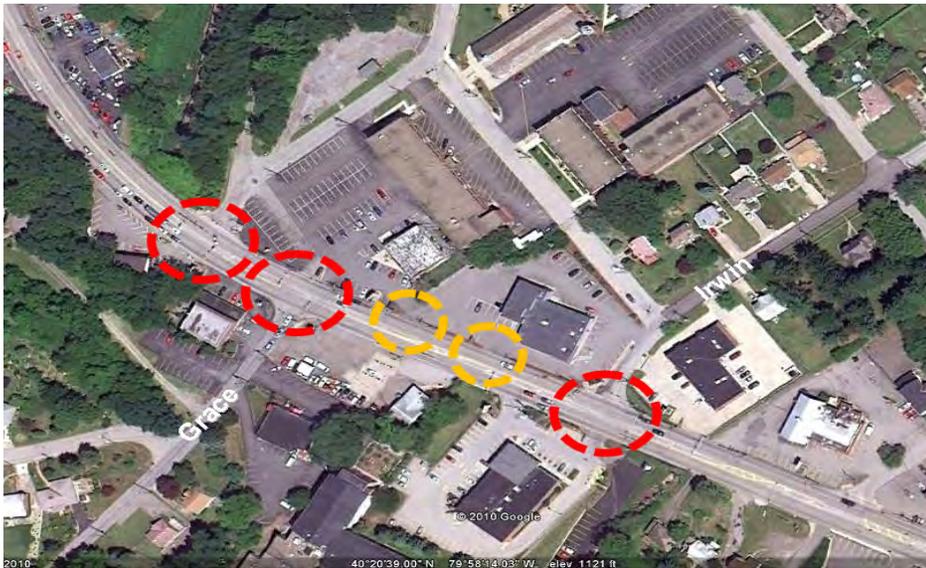
- Visibility and geometry improvements at Stilley Road
- New sidewalks near the Baldwin/Whitehall High School and improved crossings of Route 51
- Alignment of Borough Park Drive with Numberger Drive

Access Management

Access management policies continue to be important to local safety and regional congestion in this stretch of Route 51 through Whitehall, Baldwin, and Pleasant Hills. This is particularly noteworthy at two locations that serve as examples for what can be done elsewhere in the corridor.

The Intersections of Grace, Irwin, and Brentview.

Where Route 51 meets Brentview Drive is the first of three closely spaced intersections that include Grace Street and Irwin Drive. While these signals operate in a coordinated fashion, their close proximity represents a regular delay on the corridor as well as a confluence of many turning movements within a very short distance, threatening pedestrian safety in a zone of several bus stops surrounded by many residences.



Three signals (red circles) in only 600-feet contribute to congestion, plus curb cuts (yellow circles) exacerbate safety concerns along Route 51.

Fortunately, a simple access management solution can improve congestion as well as the pedestrian environment at this busy location.



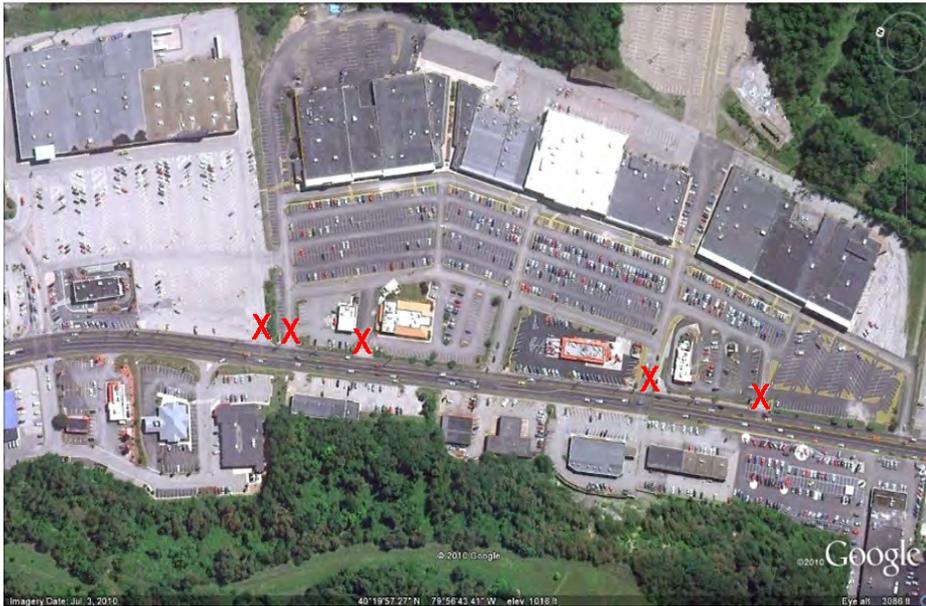
By realigning Brentview to meet Grace at a normal compact 4-way intersection, mainline delays and safety can be improved while creating a more accessible circulation pattern for abutting neighborhoods. The removal of redundant curb cuts allows the median in this stretch to be planted, enhancing pedestrian crossing safety while providing ecological and aesthetic benefits.

The "Power Center" Near Century III

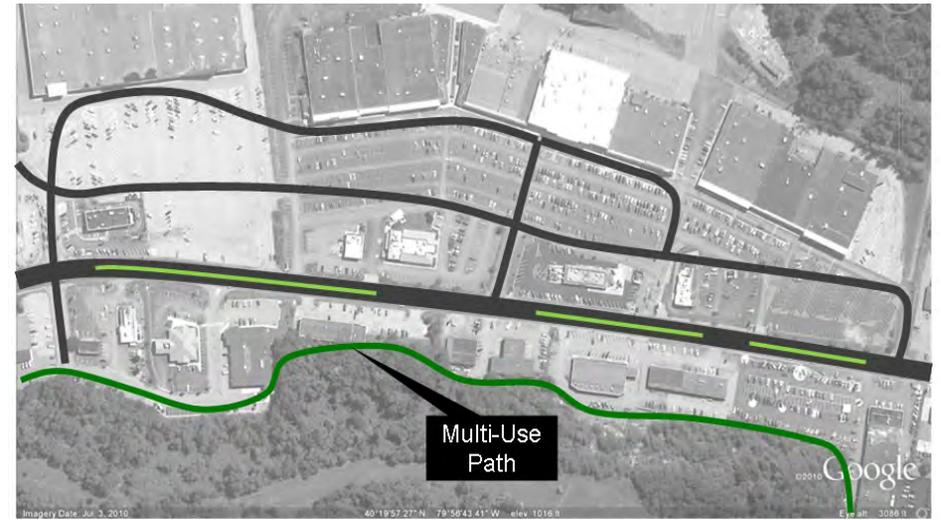
A more significant candidate for access management is the stretch of stand-alone drive-in restaurant and service attractions at the edge of Pleasant Hills. A recent reconstruction of Route 51 in this area south of the Century III mall entrance included a center turn lane. Abutting businesses fought the installation of any median that

might control access. This is very understandable, given the nature of each parcel with its own driveways and redundant on-site parking and circulation.

A safer, less congested, and more visually appealing alternative would be to develop shared access points among abutting parcels with through connections between each – ideally configured as a continuous collector road. Along the east side of this stretch, parking fields already serve this function, but too many curb cuts remain to install a median – even though a limited access profile is demonstrated by the motorists who navigate the parking lots between businesses to avoid Route 51. Formalizing these routes would have a dramatic impact for a very small investment.



Five curb cuts along Route 51 provide redundant access to parcels that have full access from an internal parking lot circulation system, clearly evident in this aerial.



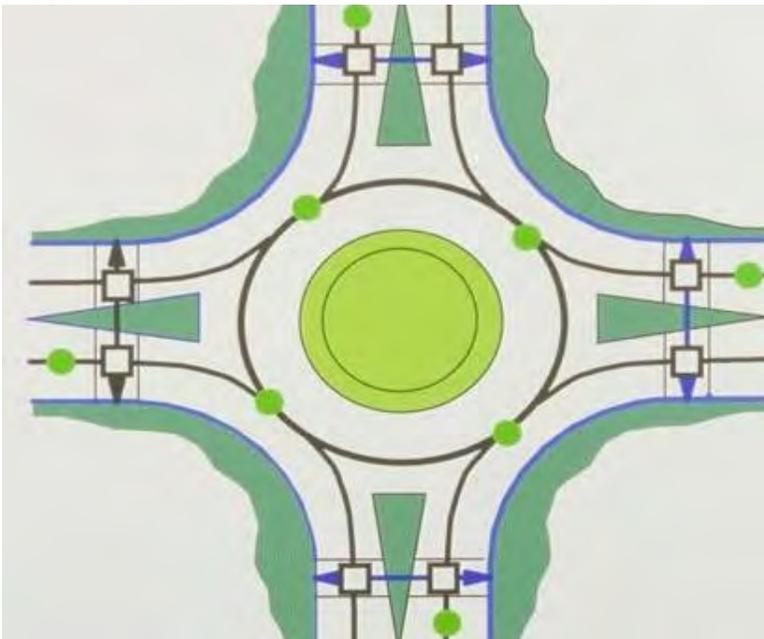
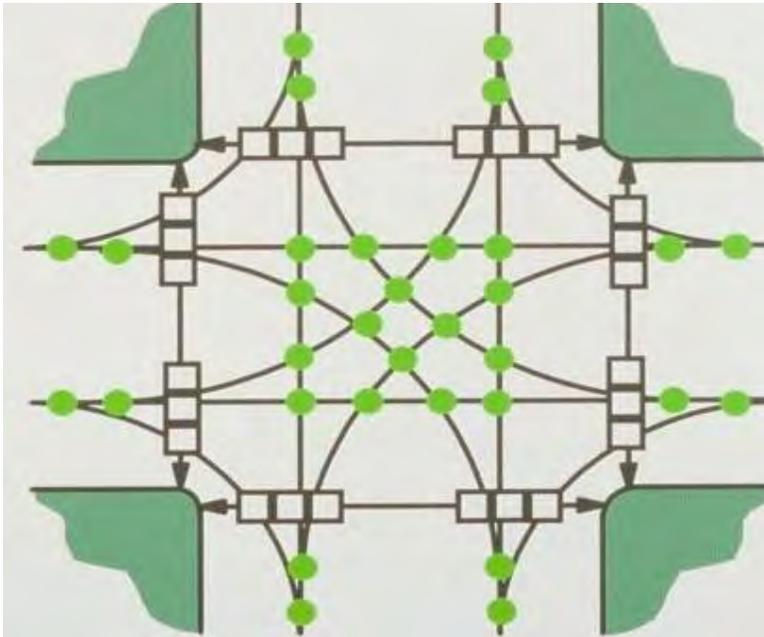
Slight realignments of parking fields can create a new parallel collector street using only three curb cuts on Route 51, enabling planted medians along the corridor. This new street could one day be the front door for infill businesses. Meanwhile, connections between abutting businesses on the west side of Route 51 could allow all to be served at the same three points. These parcels also have the ability to continue the greenway multi-use path along their rear lots.

Efficient Intersections: The Roundabout

Traffic engineers have known for decades that one of the most efficient and safest forms of intersections is the roundabout. Unlike the poorly designed “rotary” found in many northeastern communities, the modern roundabout is a channelized full-yield intersection that reduces potential vehicle conflict points from twelve of varying angles to only four simple yield movements. Furthermore, pedestrians can cross split rotary approaches easily, where traffic is forced to slow before turning onto the circular section.

Modern roundabouts in the United States have seen an overall reduction in crash rates from the intersections they’ve replaced of 39%, with a more dramatic decline of

76% in injury-producing crashes and 90% in fatal crashes – all due to the slower yield condition of the design. Two clear candidates for roundabouts exist along Route 51.



The Cloverleaf

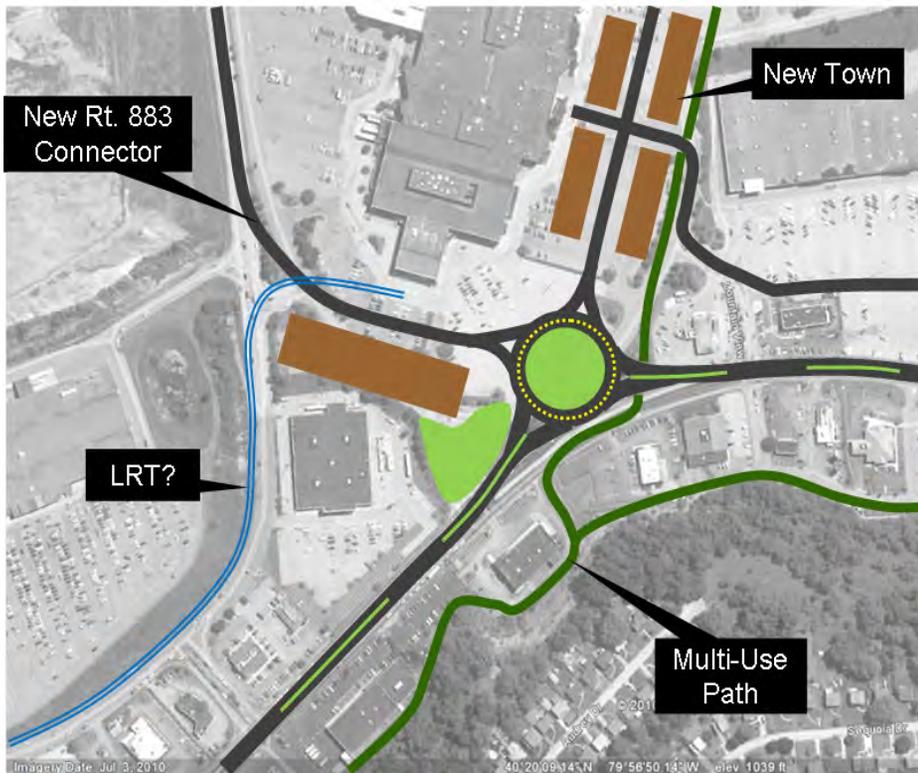
The only higher capacity intersection south of the Liberty Tunnels on Route 51 is its interchange with Route 883. Designed before modern interstate standards, it has short merge lanes and tight turning radii but functions well at a major roadway intersection with abutting commercial uses. While this operation should continue, the interchange's infrastructure is deteriorated, and improvements/reconstruction are expected in the near future.

Since modern interchange design could not work in this location without significant land takings, a two-lane roundabout becomes an ideal solution that fits perfectly within the existing land area of the interchange. With the ability to add by-pass lanes on its western side for right turns, a roundabout would function at a high level of capacity and safety with none of the maintenance costs associated with a grade-separated structure. Most importantly, it would serve to calm traffic at a location with much commercial activity, helping to preserve safe pedestrian crossings and a continuation of the greenway's multi-use path southward across Route 883.

Century III Gateway

The entry road to Century III Mall is a clear bottleneck on Route 51 that serves not only the mall but many of the newer Century Square stores atop the nearby hill. Many shoppers seeking to go south from several retailers use this signal to turn left. Meanwhile, many previous planning efforts have identified the need to continue to improve capacity to the evolving Century Square retail district and provide a connector

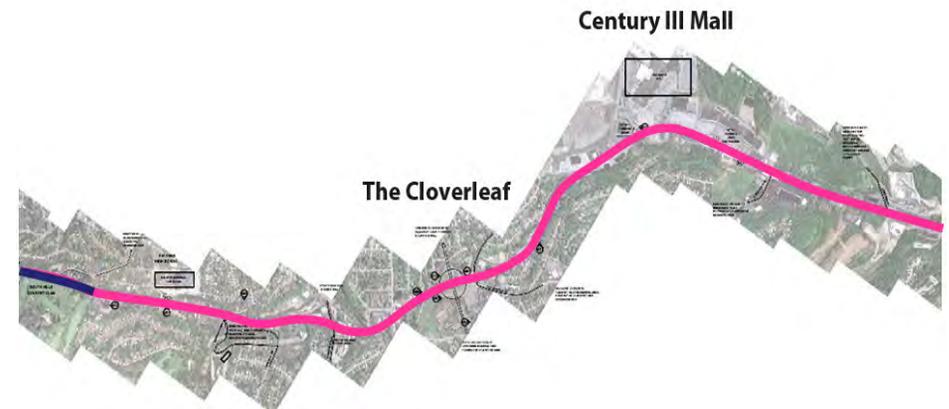
to Route 883, which can access eastern parts of Pittsburgh – avoiding Route 51. Given these factors, the mall access road intersection is an excellent candidate for a two-lane roundabout, which could help to alleviate pressure at the nearby Mountain View Drive intersection as well. Considering the development potential of the Century III Mall, a new gateway and road configuration would help define this stretch of Route 51 as an attractive node and corridor destination.



A new Route 883 connector a future “main street” for a new town at Century III mall help define a new roadway alignment and roundabout for Route 51. With improved access management controls on Route 51, the system can work more efficiently than today’s intersections while handling future traffic growth. It also allows for safe pedestrian crossings – especially a direct spur of the greenway multi-use path across Route 51 and into the new town center. Proposals for a light rail extension from Mt. Lebanon would utilize an adjacent rail alignment and provide a future transit-oriented node at this new gateway to Pleasant Hills and Route 51.

The South Hills Parkway to West Elizabeth

Proceeding south from the Century III mall and nearby retail, Route 51 slowly becomes less dense and reverts to parkway conditions as it approaches West Elizabeth. The future cross-section of this long segment would be predominantly the same parkway conditions seen close to the Liberty Tunnels – altered only by the new town center for Jefferson Hills immediately south of the ramps to the Pennsylvania Turnpike.



Utilizing the access road to the Port Authority’s park and ride lot, plus a new connection through the Westinghouse mill property, a new town center can be developed to concentrate future corridor development at a node, rather than scattered up and down this area of beautiful parkway. A new main street would intersect with Route 51, creating a walkable destination with features such as short crosswalks, on-street parking, pedestrian scale lighting, and buildings at the a wide sidewalk’s edge. This main street cross-section is not dissimilar from that envisioned for Glenbury Street at the new Route 51/88 transit-oriented node or the new street entering a redeveloped Century III mall.

Short & Long Term Place-Making Interventions for the South Hills Parkway

Streets are our front doors. They are some of our most prevalent and most visited open spaces. They don't just move cars, they move people – often by bus, on foot, or on a bicycle. They are the conduits of commerce and local retail. They are the places where people meet and interact. Roadbuilding in America has often overlooked the fact that every road improvement is place-making – for better or worse. Today, the stakeholders and communities that make up the Route 51 corridor have the opportunity to begin defining interventions in their transportation systems that will make better places.

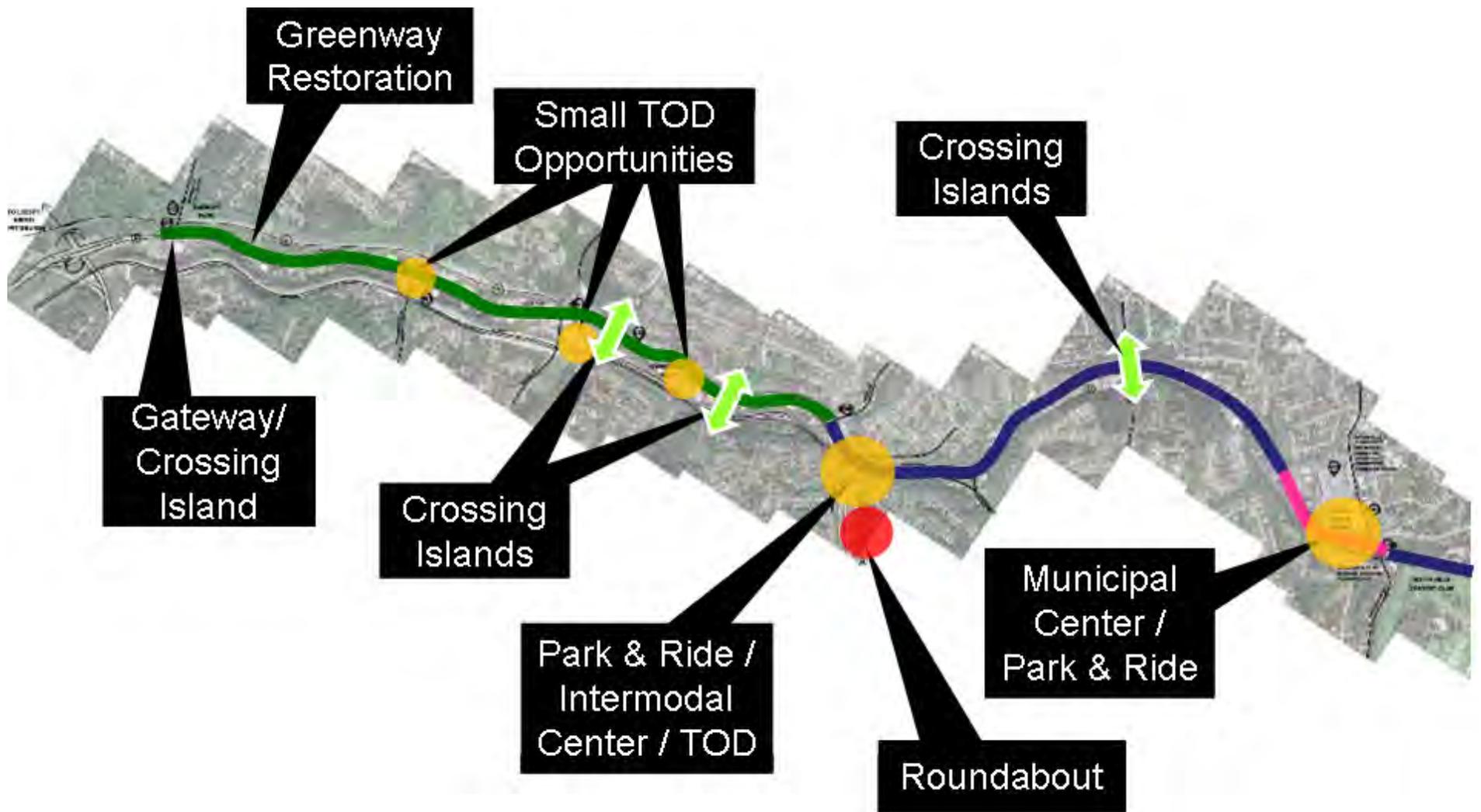
Central to this new approach to transportation corridors is focusing efforts on nodes, rather than an entire corridor. Most trips do not travel the length of the corridor. Instead, we interact with it in small bites – often just tangentially touching or crossing it. For the residents, employees, students, commuters, and visitors who use the variety of destinations along Route 51, the corridor is a series of places that should be recognized individually but with a mind to the reality that this single roadway ties these places together. Therefore, we encourage the communities of the South Hills Parkway to work together to adopt similar strategies for the entire corridor but to apply many of the land use strategies at focused nodes that can see greater capacity, transit-orientation, and a sense of place.

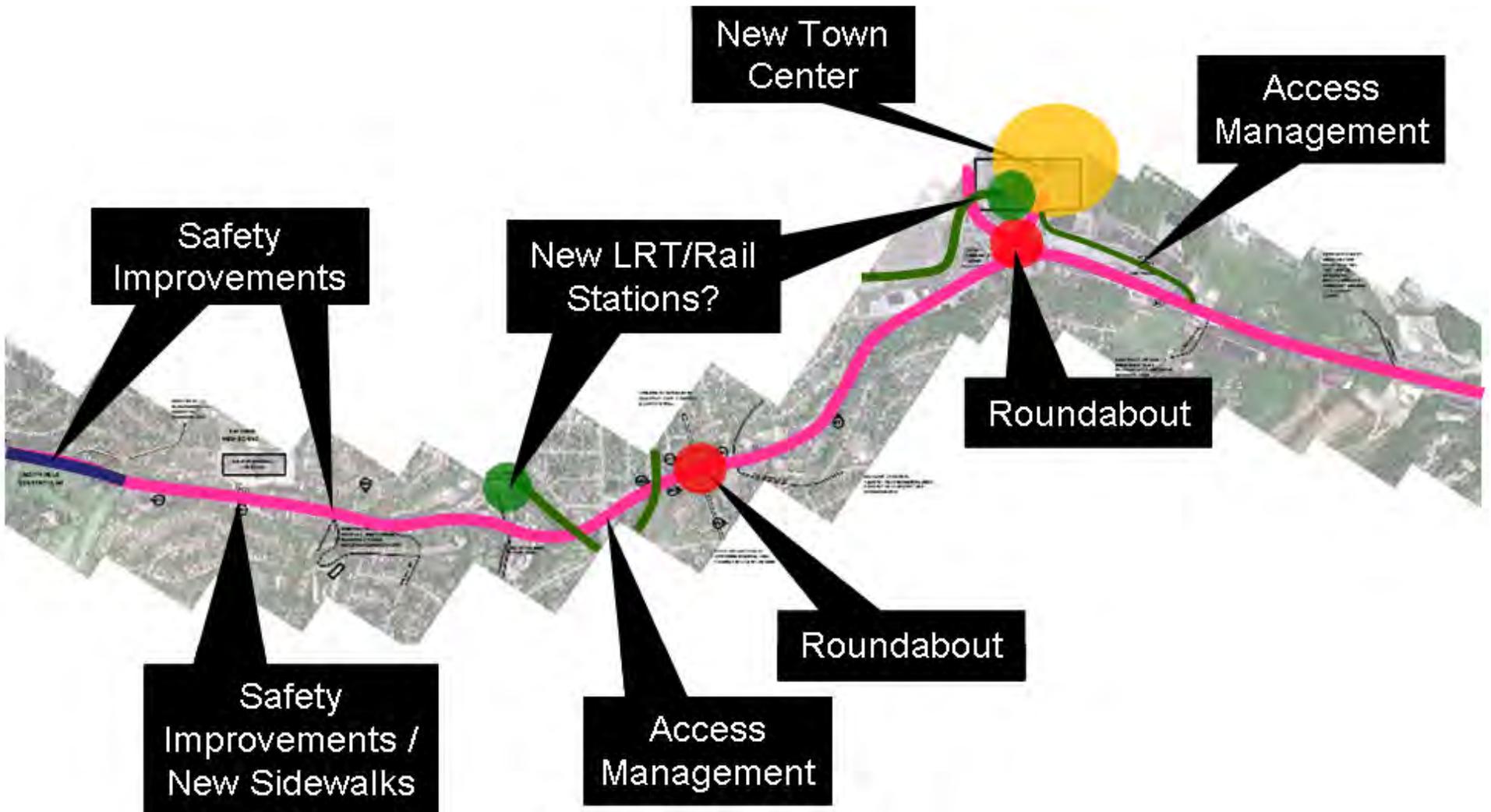
Short-Term Strategies

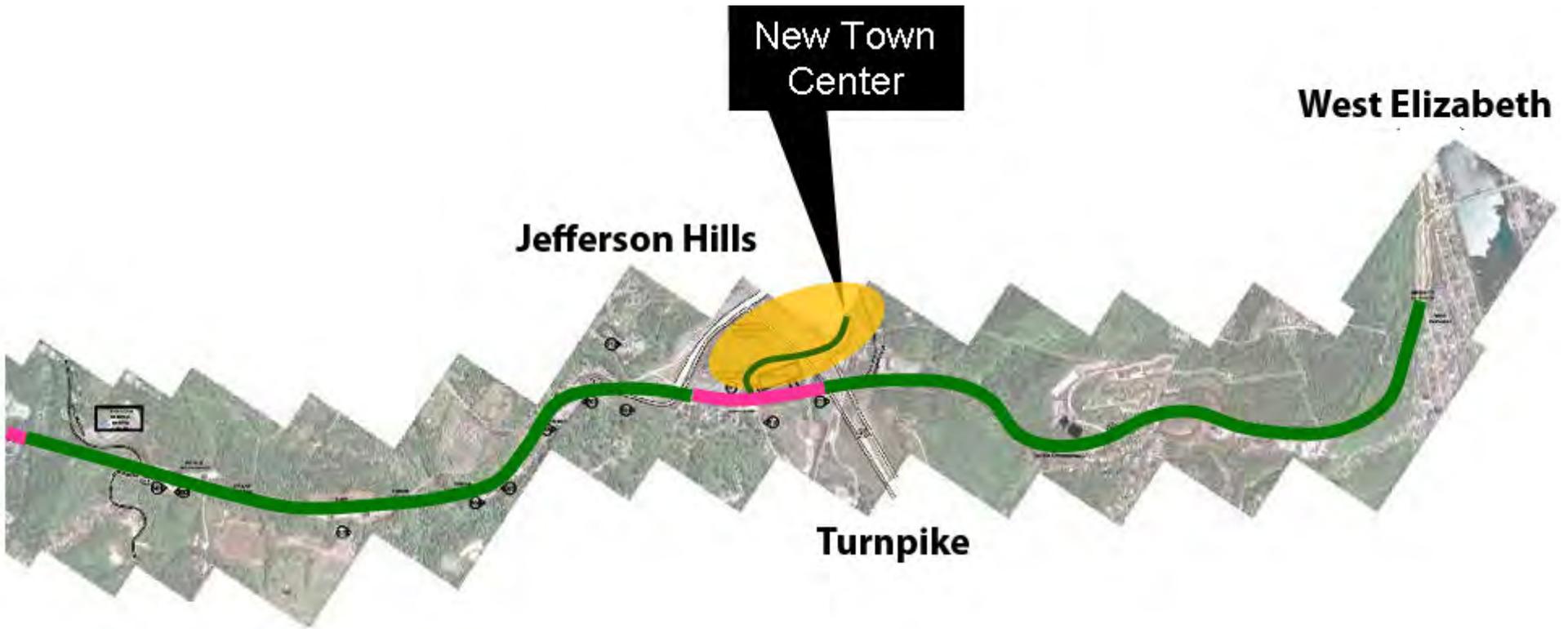
Developing a greenway, transit-oriented nodes, access management plans, and new intersections and crossings can seem daunting, but the treatments outlined through

this effort are relatively small interventions at focused locations that help to define a new approach to the entire corridor. Nonetheless, each improvement requires planning, design, construction time and money. However, a number of key strategies can begin immediately to anticipate these interventions.

- Modify zoning language to allow lower parking minimums, shared-parking incentives, set-back exceptions for shared parking and access, and reduced curb cut sizes and frequency.
- Introduce consistent guidelines for transportation features, including international standard crosswalks, bicycle parking, sidewalk width, bicycle facilities, and pedestrian signalization.
- Enact pavement marking prioritization programs that maintain important crosswalk markings at all time.
- Install new pedestrian wayfinding signing.
- Install transit information signage, including bus routes and timing at bus stops.
- Install pedestrian crossing islands at existing crossings with center turn lanes.
- Establish demand-management programs that incentivize new employees and residents to commute by alternate means.
- Provide reduced rate bus fares to those using formal park and ride facilities (the bus fare at the park and ride lot at the turnpike encourages drivers to drive closer to town to save bus fare, adding needlessly to congestion).
- Enact local “adopt a stop” bus stop maintenance programs that provide free advertisement to local businesses in exchange for their name on shelters.
- Provide zoning and other development incentives to have existing parcels develop a multi-use path through their rear lots.
- Consider multi-jurisdictional transfers of development rights to encourage development at nodes rather than spread along the corridor.







DESIGNING WITH NATURE

Tom von Schrader

There are some incredible opportunities for implementing sustainable green interventions along Route 51 as it redevelops. Urban green infrastructure (GI) repositions the role of nature in the city from an optional amenity to valued purveyor of ecosystem services. It also reinforces the importance of compact and vibrant cities as the most sustainable form of human habitation and the key to regional and global environmental health. Green Infrastructure has historical roots in cities like Minneapolis with the Grand Rounds and Boston's Emerald Necklace. It would be great if a hundred years from now an AIA SDAT team uses Route 51 as a precedent setting project.

The term "green infrastructure" applies across a wide range of landscape scales and settings. The idea originated in the strategic conservation planning field, pioneered by leaders at the Conservation Fund and The US Forest Service (www.greeninfrastructure.net). Their emphasis was primarily on green INFRASTRUCTURE, as in our big green—forests, wetlands, greenbelts, etc.—should be understood as infrastructure since it supports essential ecosystem functions on which humanity and

all life depends. At this scale, green infrastructure thinking complements the smart growth movement by identifying the most critical lands to preserve and suggesting appropriate locations for development.

Fundamentally, green infrastructure is just a framework for recognizing the valuable services that nature provides for the human environment. At a bioregional scale, green infrastructure supports essential ecosystem functions. At a metropolitan scale, green infrastructure forms a tapestry of open space that serves and guides smart growth. At a site scale, green infrastructure integrates functions and makes life-giving processes visible and meaningful. Large protected and connected natural habitats are the foundation for any regional green infrastructure network. Parks, trails, greenways, and other open spaces should link communities to each other and a regional landscape matrix. Holistically conceived, a green infrastructure network is also a regenerative solution to urban challenges associated with stormwater and waste management, mobility and public health, local food and energy security, and even protection from natural and man-made hazards.





Much the same way as the body is the sum of its constituent parts, public spaces, including corridors like Route 51, have discreet and interconnected systems that we need to understand in order to develop effective sustainable designs.



The systems essential for sustainable corridor design are Mobility, Water, Community, Habitat and Energy. Using these systems at a corridor scale allows for more dimensional and accessible planning that supports a green agenda. The performance of these systems is enhanced as they intersect and overlap. For example, a rain garden could perform the functions of water treatment, traffic calming, habitat creation and a community amenity. We call these high performance landscapes.



Why green infrastructure in the Route 51 corridor? Route 51 has good bones and green infrastructure/ high performance landscapes can bring back the ecological function that has been degraded. There are resources such as Saw Mill Creek, its associated flood plain, and the upland areas that are worth protecting and regenerating. Green infrastructure can be used to control flooding in



the corridor by restoring flood plain storage and building GI facilities that attenuate the peak runoff. In the northern part of the alignment, green infrastructure can be used to control combined sewer overflows (CSO's). CSO money could be leveraged to build high performance landscapes in the corridor that not only control overflows but at the same time promote the communities' agenda for mobility and economic development. Finally, green infrastructure can be used to comply with the NPDES permits.

Revealing and measuring are important considerations when implementing green infrastructure. First we want to REVEAL. We can't appreciate a high performance landscape's complex workings if we can't experience it, so honestly





expressing the processes, phenomena, and purpose of green infrastructure is fundamental.

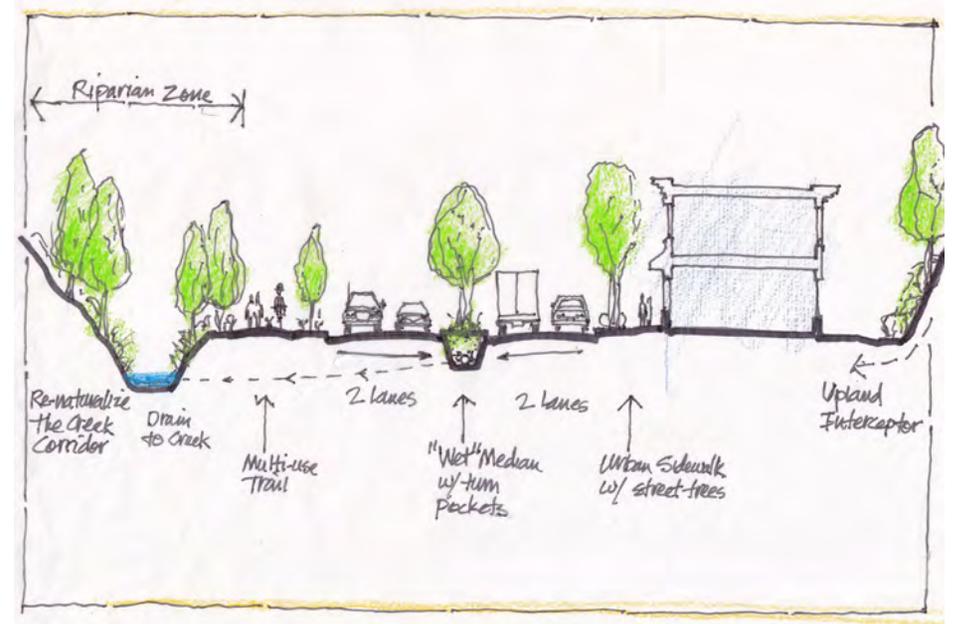
As important as revealing these functions, measuring their efficacy is fundamental to the future of

sustainability. As designers and implementers we need a feedback loop that lets us know that we are getting value for the resources we are expending.

Green Infrastructure Strategies

Bioretention Systems

Bioretention systems use amended soils and vegetation to absorb, hold, evaporate and treat stormwater. By reducing peak flows and the total amount of runoff which leaves the site, these facilities decrease the negative downstream or downslope impacts of storm events. Bioretention systems can be designed to infiltrate stormwater, thus decreasing transport of some pollutants and recharging groundwater supply. They are typically used to retain and treat runoff from roads, parking lots and other pollution-generating impervious surfaces. Bioretention systems can be integrated into site design as linear features (e.g. bioswales) or as cells (e.g. rain gardens and stormwater planters). Additional community benefits from bioretention facilities can include increased open space, traffic calming, and habitat patches.



Opportunities for using bioretention systems include within traffic calming curb bulbouts, in roadside bioswales, and in place of standard landscape plantings on streets and around buildings (such as at building downspouts or topographical low points).

Bioretention Cells

Bioretention cells are shallow planted depressions that utilize climate-appropriate plants and soils to retain and treat stormwater. Bioretention cells promote transpiration of stormwater through the vegetation; detention of stormwater in the pores of amended and native soils; cleansing of stormwater through various mechanisms that include sedimentation, filtration, adsorption, and phytoremediation; and retention of stormwater via infiltration into native soils. Bioretention cells may include both

distinct cells (commonly known as rain gardens), as well as linear systems of connected cells (also known as bioswales) that allow for infiltration and also serve to convey stormwater. Bioretention cells may have underdrains to help convey excess water below the soil surface. They do not have impermeable layers between the prepared soil and the native soil subbase, however. Conveyance may be a secondary, but not the primary purpose for bioretention cells. All bioswales perform some amount of conveyance, but those considered to be bioretention systems also allow infiltration of stormwater into surrounding soils.

Bioswales

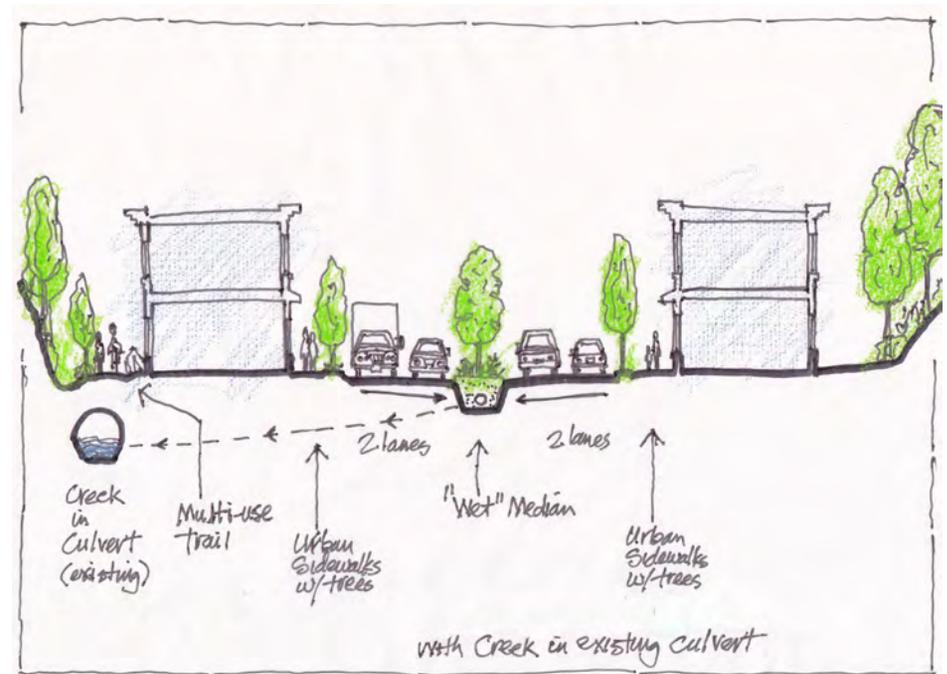
Bioswales have been shown to remove 70% of total suspended solids, 30% of total



phosphorus, 25% of total nitrogen, 50-90% of certain metals, and 67-93% of oil and grease pollutants in stormwater (Davis & McCuen 2005, p. 236). Bioswales are recommended for use adjacent to drive lanes, in place of conventional in-road features (such as curbs and gutters) and as vegetated buffers in vehicular and pedestrian areas.

Rain Gardens

Rain gardens are typically designed with a ponding depth of less than 18" in order to meet small scale flow control and water quality requirements, and may be formed into any shape. An overflow, either piped or natural, is typically included to manage higher flows and convey runoff to the public storm drain or a channel or natural outlet. Rain gardens are generally sized to equal 5% of the area to be treated. They can be particularly effective at heavy metal removal; reductions of up to 95% of lead, copper and zinc, and 70-85% of total phosphorus and nitrogen have been noted (Davis & McCuen 2005, p. 241). Rain gardens are useful strategies for managing stormwater in areas adjacent to parking, such as within tree islands, along pedestrian zones, in center roadway medians, and in unused open space, including front yards.



Bioretention Planters

Stormwater planters are similar in design and function to rain gardens, but have a more defined shape and vertical sides, and typically an impermeable bottom layer or enclosure. The planters are usually constructed of concrete, making them well-suited for urban applications where water needs to be directed away from a structure and prevented from seeping into surrounding soil. Stormwater planters consist of a planter box made of sturdy material, amended soils, a gravel drainage layer, and plants. An overflow is incorporated to manage higher flows and convey runoff to the public storm drain system, either via a perforated pipe or via sheet flow. Although stormwater planters can also be designed without a bottom to allow infiltration, they are typically designed to focus on flow control and attenuation to the public storm drain system. They are particularly effective at handling low intensity storms.

Stormwater planters are recommended on rooftops and terraces and adjacent to buildings, sidewalks and pedestrian plazas where flow control is a significant concern and space is at a premium. Planters can also be designed to serve a conveyance function in the right-of-way where there is insufficient width to provide sloped



sides (i.e., a swale) or where the grade is too steep. Stormwater planters provide aesthetic benefits and, depending on plant selection and design, can provide water, food and nesting materials for birds.

Pervious Paving

Pervious paving technologies provide hard surfaces for walking and driving while allowing stormwater runoff to percolate into an underlying soil or reservoir base where it can infiltrate into native soil or be conveyed off-site via an overflow drainage system.

Pervious paving is largely made up of the same components as conventional paving material, but includes more void space to allow runoff to percolate through the pavement section. Void spaces within these pavements trap oils, grease, and other roadway



pollutants and create opportunities for micro-organisms to break them down. Additional benefits include reducing impervious surface area, which in turn, reduces stormwater flows off-site.

Pervious paving systems may be used in place of conventional impervious paving in almost any location. They are typically used more extensively on low-traffic streets, such as residential streets and pedestrian corridors, and are especially appropriate for parking areas, driveways, and sidewalks.

Porous Concrete

Porous cement concrete generally has a narrower distribution of coarse aggregate and contains less fines than standard concrete. The porous concrete layer is placed atop a 6" to 12" permeable subbase reservoir which assists with flow through, can be sized to provide detention, and provides strength for the travel lane. Installation of porous cement concrete can be challenging and requires the talents of experienced craftsmen. Porous cement concrete can often be identified by the "popcorn" effect of its surface. This surface finish can be mitigated by using smaller aggregate sizes to provide a smoother, more traditional finish. Aggregate sizing can range from as small as 1/4" all the way up to 1".

Porous Asphalt

Porous asphalt is a variation of the standard hot mix asphalt used as a road surface. Porous asphalt omits the fine sand and dust, creating void content of about 18-22% compared to the 2-3% void content of traditional asphalt mixes. This top course is installed as a 2-4" thick layer placed atop a course of coarse aggregate designed to rapidly filter and store water in addition to providing stability. Porous asphalt is slightly easier to install than porous concrete; however, product life tends to be shorter (about 10-12 years).

In appearance, porous asphalt has a similar finish to standard asphalt. It is generally smoother than porous concrete, making it ideal for pedestrian surfaces. Porous asphalt has been shown to reduce runoff by 60-98% (Legret and Colandini 1999) and

can reduce total suspended solids in runoff and their associated pollutants by more than 80% (Barrett 2008). It can also increase road safety by reducing splash and spray, providing better visibility and traction, and reducing hydroplaning.

Porous Pavers

Porous pavers are made for a wide variety of uses, from patios, paths and walkways, to driveways, parking areas and roadways.

Porous pavers come in many shapes, sizes and finishes, ranging from open grid systems with grass or gravel to interlocking porous blocks.

Porous pavers tend to be easier and faster to install than porous concrete or porous asphalt, but require more long-term maintenance.

Porous pavers have been shown to reduce virtually all runoff and to substantially reduce runoff pollutant loads, particularly zinc and copper. (Dietz 2007).



Vegetated Roof

A vegetated roof (aka 'green roof') consists of waterproofing, a drainage layer, a root barrier, growing media, and plants. Extensive vegetated roofs have thin soil profiles capable of supporting sedums, grasses, and herbaceous plants. Intensive vegetated roofs have deeper soil profiles capable of supporting shrubs and small trees. Vegetated



roofs can increase the life of a roof by 2-3 times, reduce heating and cooling costs and the heat island effect, improve air quality and reduce noise pollution. Green roofs can also provide additional open

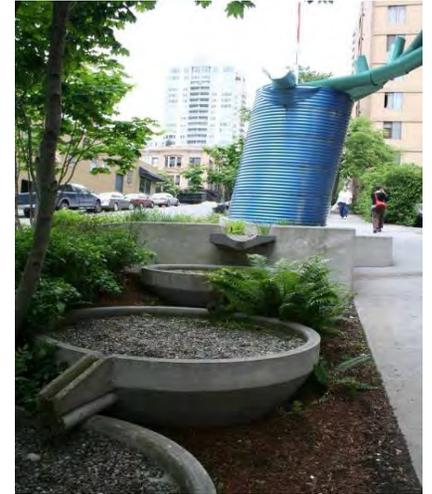
space for recreation and urban agriculture, and habitat patches for insects and birds. The visual relief of a green roof within the dense urban environment can also provide human health benefits.

Vegetated roofs can be used on any built structure, from a transformer box to the awning over a building entrance, or the roof of a warehouse or high-rise. There are a variety of green roof technologies and products available that vary in storage capacity, cost, maintenance effort and roof load.



Detention Cistern

Detention cisterns are used to collect rainwater and stormwater runoff so that it can be used in on-site irrigation and building greywater systems, or can be slowly released over time via infiltration into the ground. Cisterns are constructed of fiberglass, polyethylene, concrete or other sturdy material. They can be installed singly or in a



series, and can be above or below ground. Detention cisterns can also be integrated into buildings or sites as art installations. Stormwater is generally collected from roofs and routed to the cistern via downspouts, although underground cisterns can also be used to capture filtered stormwater that has passed through rain gardens.

All buildings, particularly those with adjacent landscaping, provide opportunities for stormwater collection and reuse on-site.

Reduce demand on stormwater and sewer infrastructure

- As recommended elsewhere, institute high performance landscape plantings along the Route 51 corridor to begin to increase the amount of stormwater infiltration possible
- Create corridor-wide stormwater requirements, meeting the NPDES Phase 2 requirements or a more stringent local standard. (Common standards are reducing site runoff by 25% over existing conditions for redevelopment sites and not increasing post-development runoff on greenfield sites)

- Encourage/incentivize water efficient plumbing fixtures. Replacing existing toilets and showerheads with EPA WaterSense labeled fixtures can cut water use and wastewater generation in new buildings 30-50%, and 50-70% in existing buildings.
- Municipalities could subsidize WaterSense fixtures for existing building retrofits (\$100/toilet, etc). This is often offset by the decreased cost of sewage treatment and avoided fines for sewage overflows. (Note: on average, 25% of a municipality's energy bill goes to water/wastewater treatment and pumping).
- Implement a stormwater utility program. Stormwater utilities issue a fee per square foot of impervious surface (roofs, asphalt, concrete, etc) to property owners and use that fee to address the capital costs associated with local stormwater improvements. This also creates an incentive for property owners to voluntarily reduce stormwater runoff on their sites since it will lower their annual fee. (Fees typically range from \$0.05/sq foot of impervious to \$0.75. Often they are flat fees for residential - i.e. \$40/year for single family). Thousands of municipalities across the country have implemented stormwater utilities to help reduce runoff and to cover the cost of infrastructure improvements.

URBAN DESIGN & STREETScape

Mark Hinshaw

The environmental and economic development issues along the corridor discussed above are two legs of the “three-legged stool” of sustainability. Now we will focus on economic development as well as issues of social sustainability. Any urban area benefits from a mixture of land uses. This helps reduce traffic movement, supports transit, provides for a full spectrum of activities and embraces places for living, working and spending time.

The Streetscape

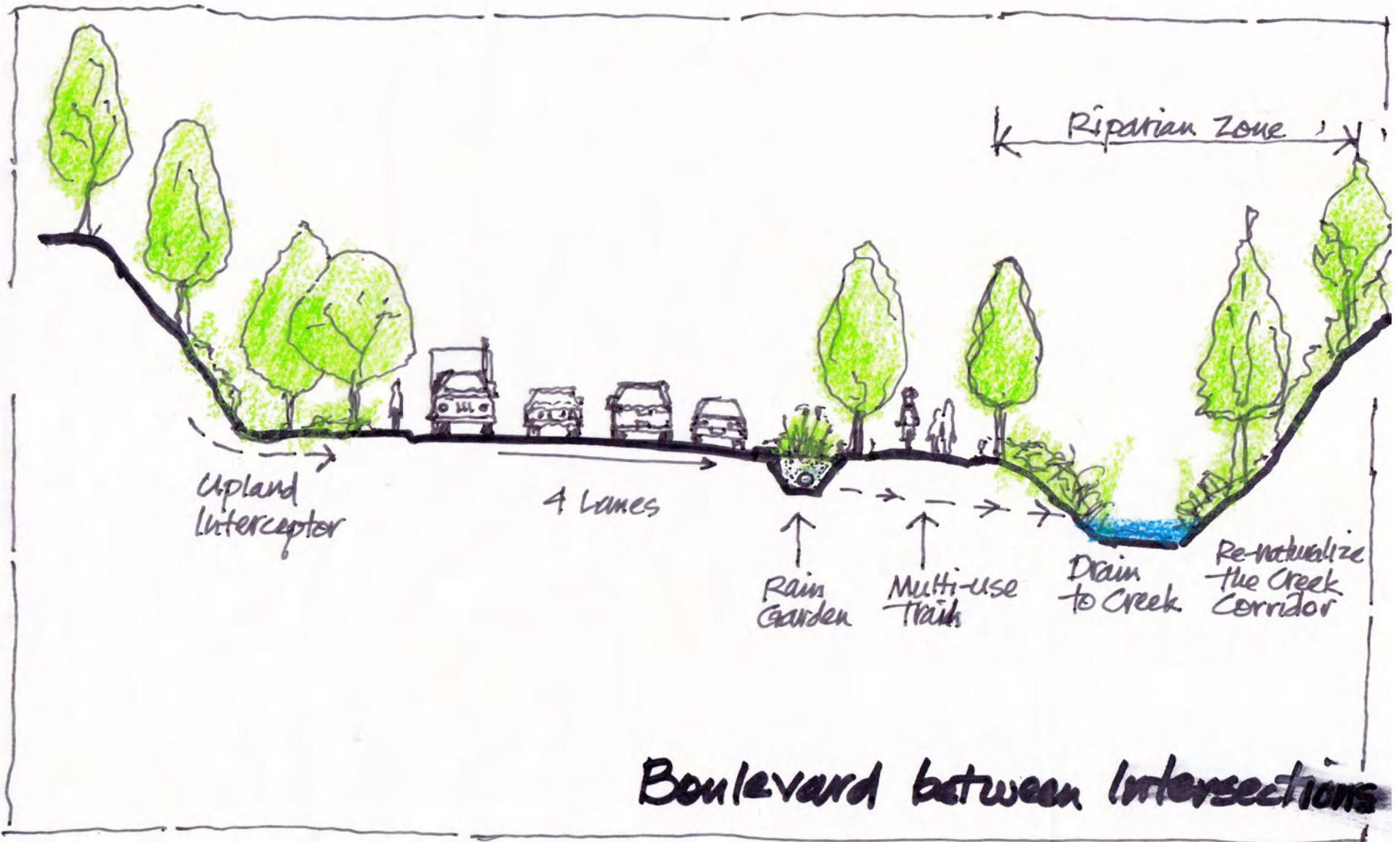
The streets and sidewalks are a critical part of this equation. But this is a not a subject that lends itself to a one-size-fits-all approach. Each segment of the corridor must be tailored and calibrated to fit the movement systems, land uses, and varying community characters. There should be a few common elements that serve to unify the corridor, such as directional signs, lights and perhaps street trees, but most attributes can reflect the vision and history of the adjacent community.

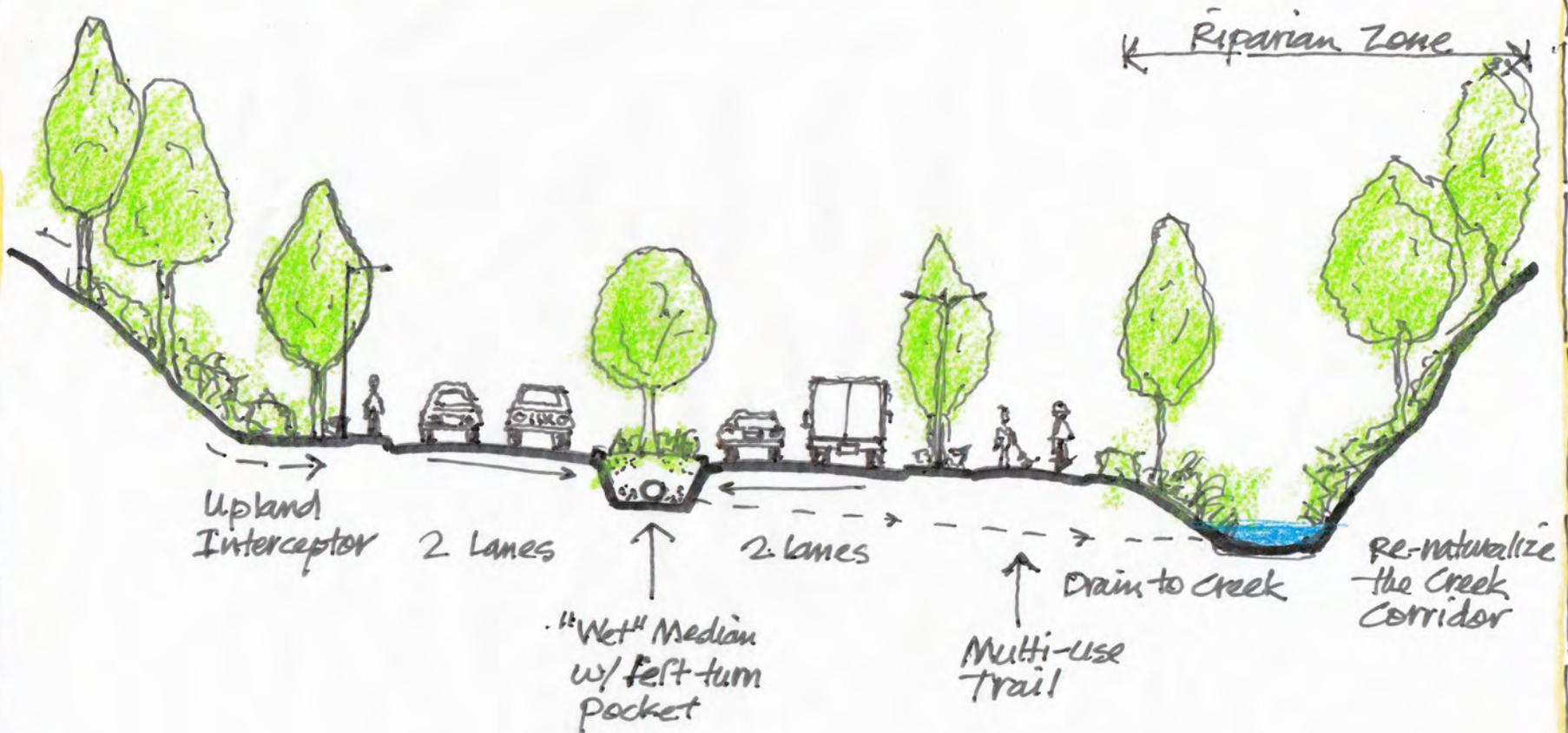
However, the corridor does have a stunning lack of good, safe, and convenient sidewalks. Where they exist, most sidewalks are dangerously narrow and devoid of vegetation. Consequently, the appearance of the corridor is bleak, austere and unappealing. In order for sidewalks to support walking they should be at least 12 feet wide, including a 4-5 foot wide planting strip behind the curb. Street trees should always be planted in that location (rather than behind the sidewalk) to provide some modicum of separation between people on foot and moving vehicles.

Although trees and other vegetation perform valuable roles in reducing air pollution, providing habitat, and capturing and filtering runoff, they also enhance the value of properties. Recent research has demonstrated that streets lined with street trees have properties with higher land values and the higher sales per square foot, versus streets that lack trees. The planting zone can also provide space for other amenities such as signs and bicycle parking. Pedestrian-scale lights can also be installed in that location. The support poles can be fitted with outlets to allow for seasonal lighting. Pedestrian-scaled lighting typically is in the 14-16’ height range, compared with roadway lights which are 30-35 feet in height.

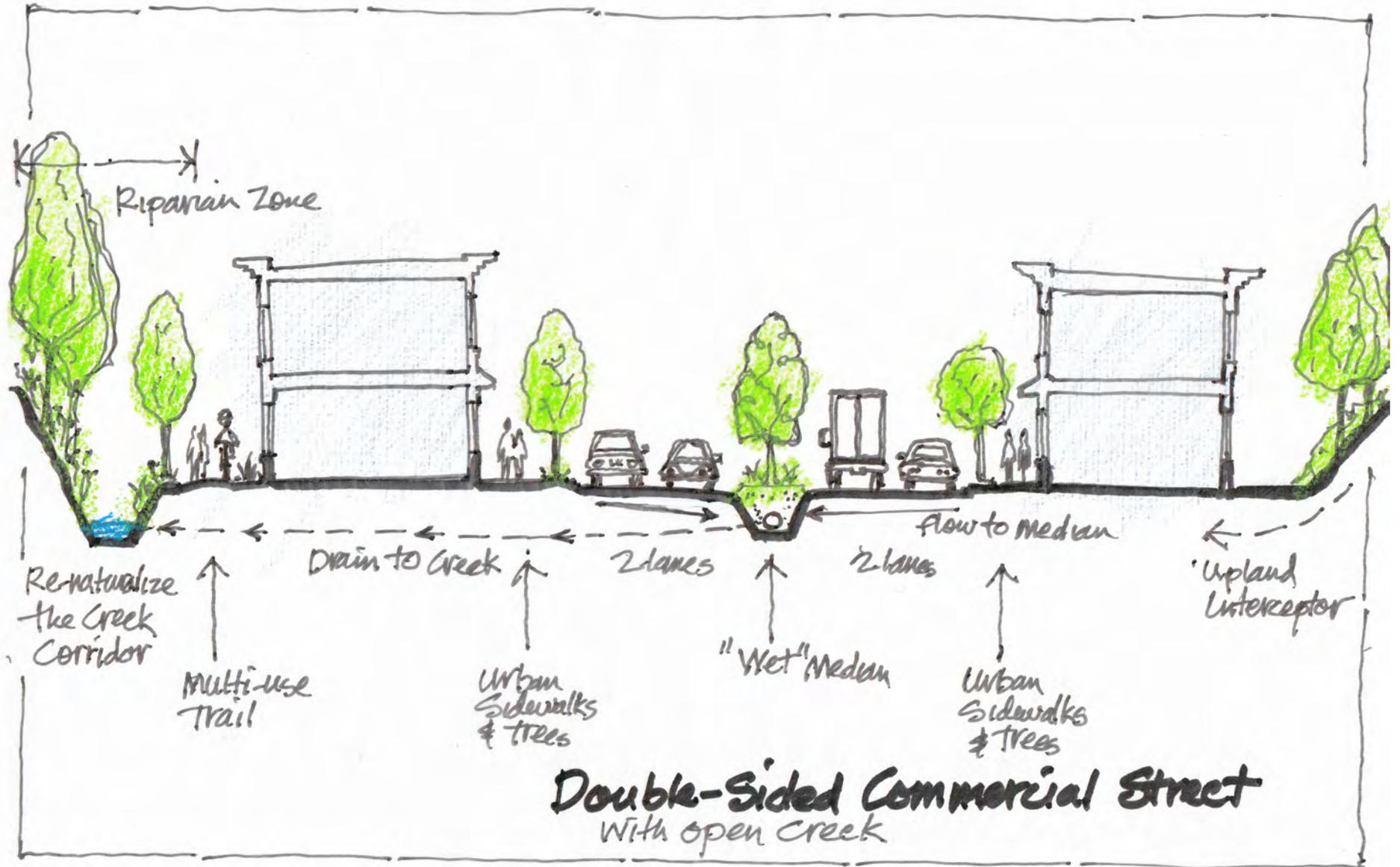
As the corridor passes through the various communities, there are usually ideal locations for installing “gateway features” that announce each town. This can consist of colorful planting, lighting, signs, and prominent markers or archways. Each community could utilize local artists to create unique symbols and settings.

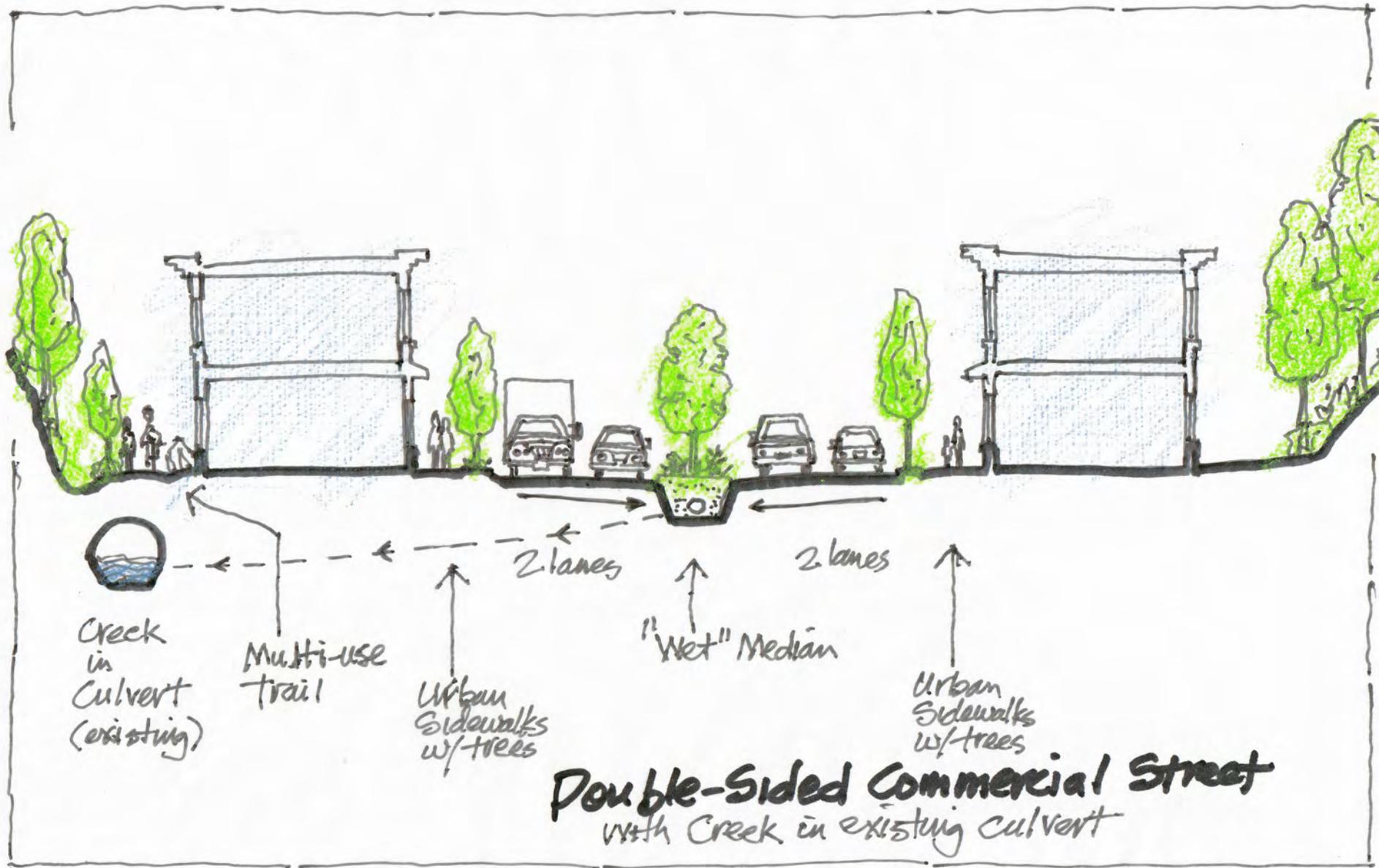
For various segments of the corridor, we have suggested different street sections. Each reflects varying functions, connections, roles and adjoining uses and environments. There are similar principles, however, that create outdoor rooms, capturing runoff, calming the traffic and providing for safe and comfortable sidewalks. New development would be expected to be placed at the back of the sidewalk (rather than behind a parking lot), to create a sense of enclosure and continuity. Parking would be provided in lots to the rear or to the side of buildings and in some cases in basement levels underneath.

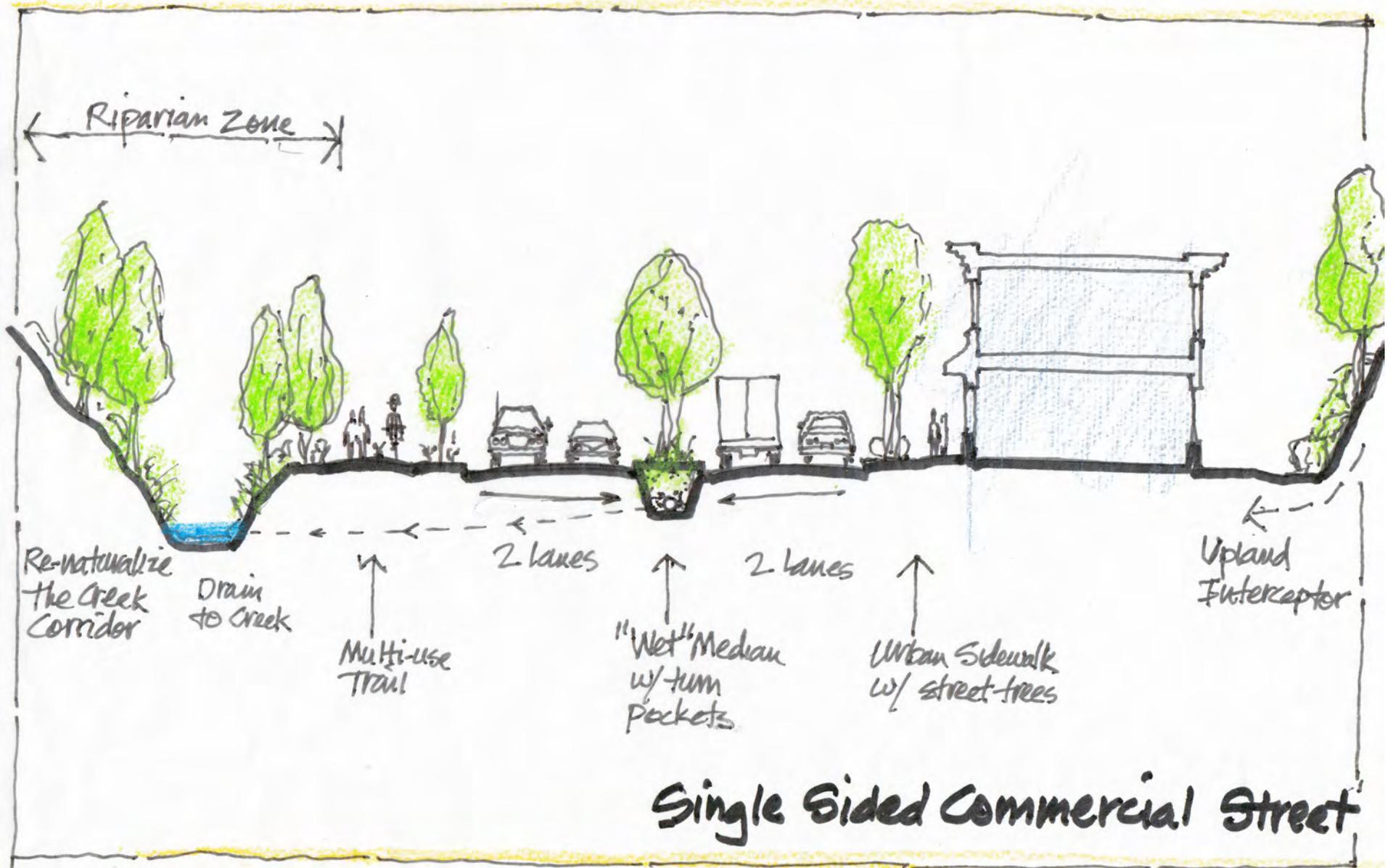




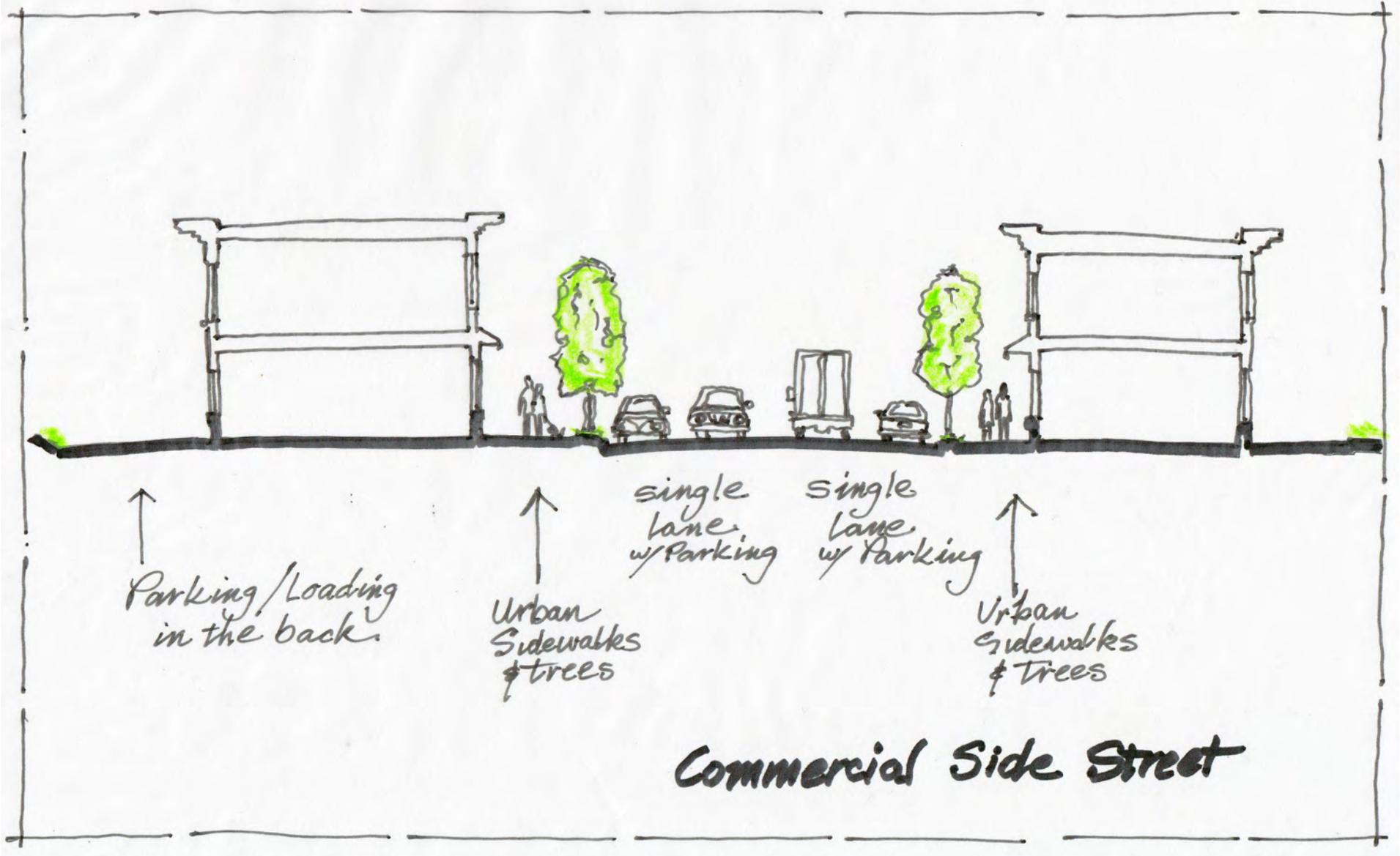
Boulevard Near Intersections







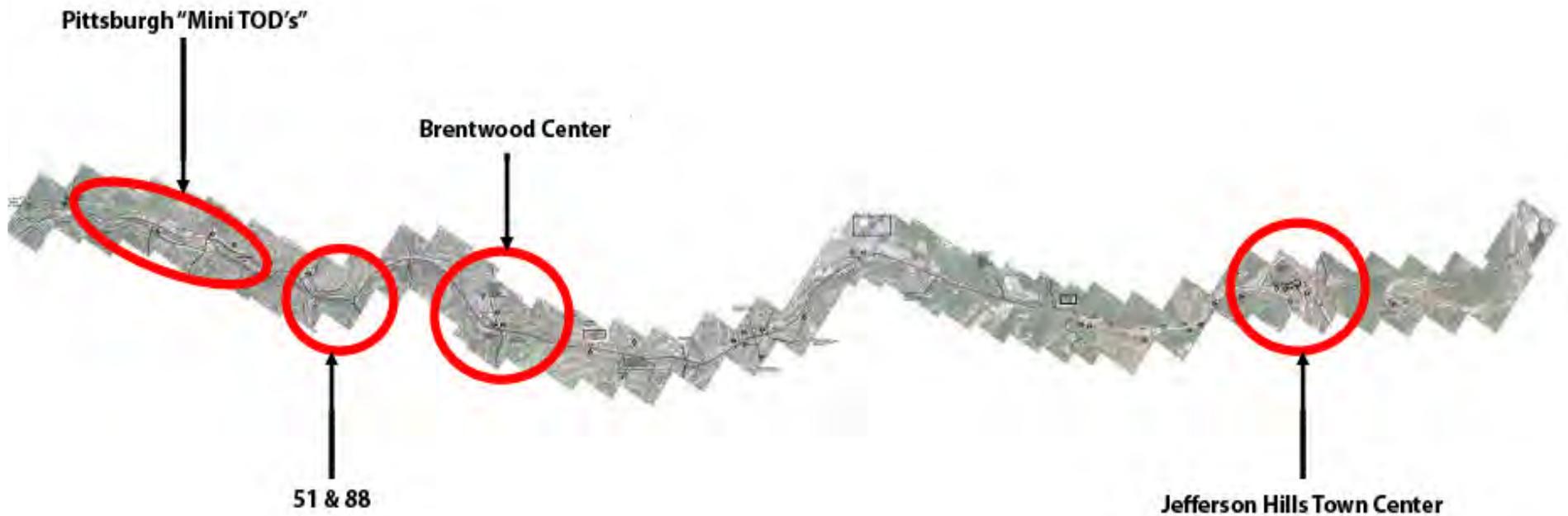
Single Sided Commercial Street



Community Nodes

Rather than continuing the current pattern of strip development, which exacerbates traffic congestion and degrades the natural environment, we are recommending the new development and redevelopment be compressed into community “nodes” which contain greater intensity than is the case today. The typical pattern of one-story strip development artificially depresses the value of all land along the corridor. Given a declining demand for retail, that produces the high vacancies and turnover evident today. Retail uses benefit from being clustered so that they can share parking and access and act in a synergistic way that benefits all businesses. We have identified four such nodes that seem to have the “bones” to become solid, healthy and dynamic centers:

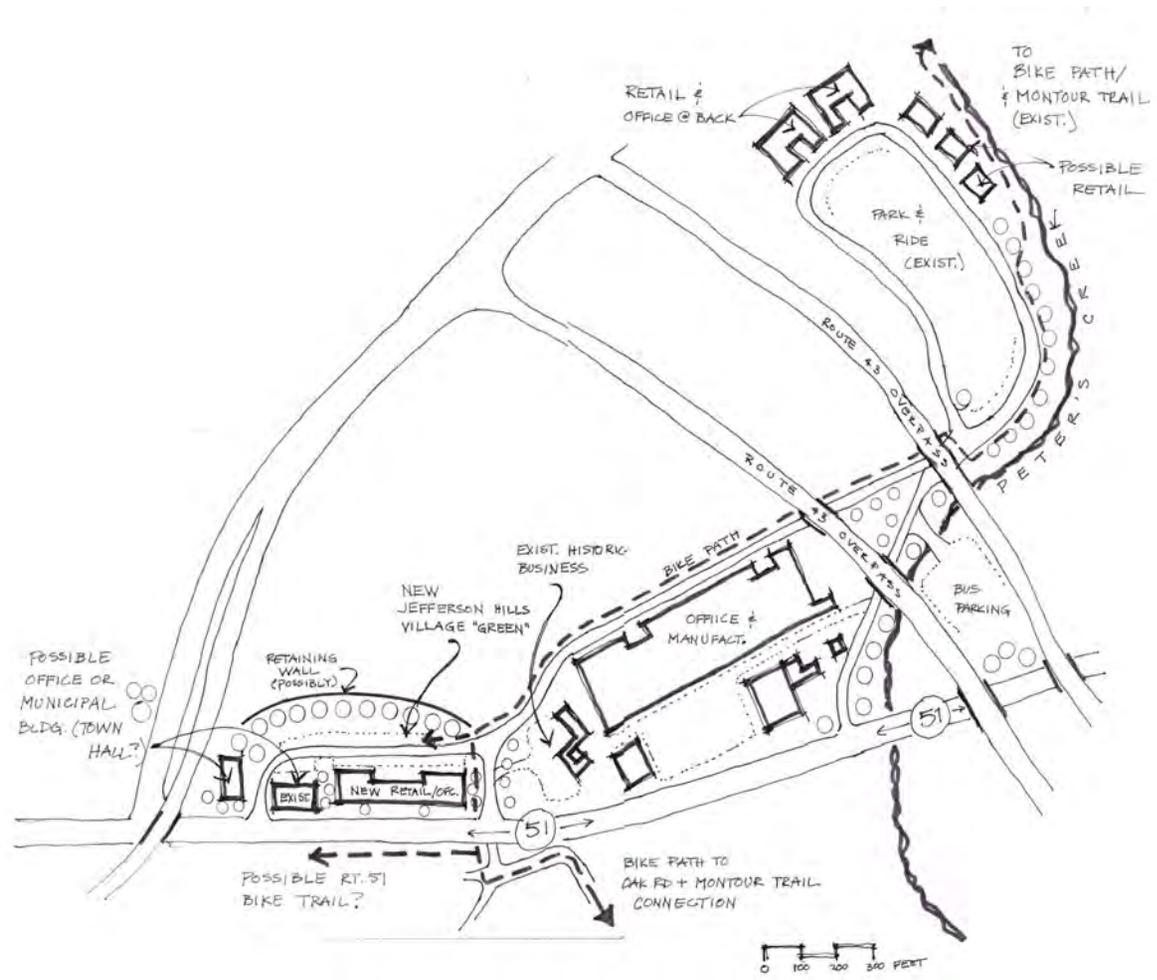
- Jefferson Hills Town Center (essentially new)
- Brentwood Center (redevelopment)
- The Area Around Highways 51 and 88 (new and redevelopment)
- Within Pittsburgh, Small TOD Centers Close to Rail Stations (new)



Jefferson Hills

The 450-stall park and ride lot in this location is massively underused, with generally only about 60 spaces being used for commuter parking during the weekday. The lot is somewhat isolated and not visible from the corridor. We suggest using some of the land now paved with asphalt for transit oriented development – both employment and housing. But we also see the potential of the former Westinghouse plant that is now used for some light industrial purposes. This can be an excellent place to encourage small businesses to start up and expand. The rectilinear layout of the older, dignified buildings could lend itself to a gridded street pattern that can connect both east and west.

To the west, there is the historic house that has been restored, that can become the centerpiece of the town center. A former bank building could be converted to a city hall and other properties could be development with offices, shops and housing. The end result over time could be a completely integrated town center with a full array of uses, employment, housing and civic landmarks, all served by transit. This could provide for a clear, strong identity for this relatively new and growing community. One early phase could involve simply allowing commuters to pay a one-zone fare as an incentive to use the parking facility.



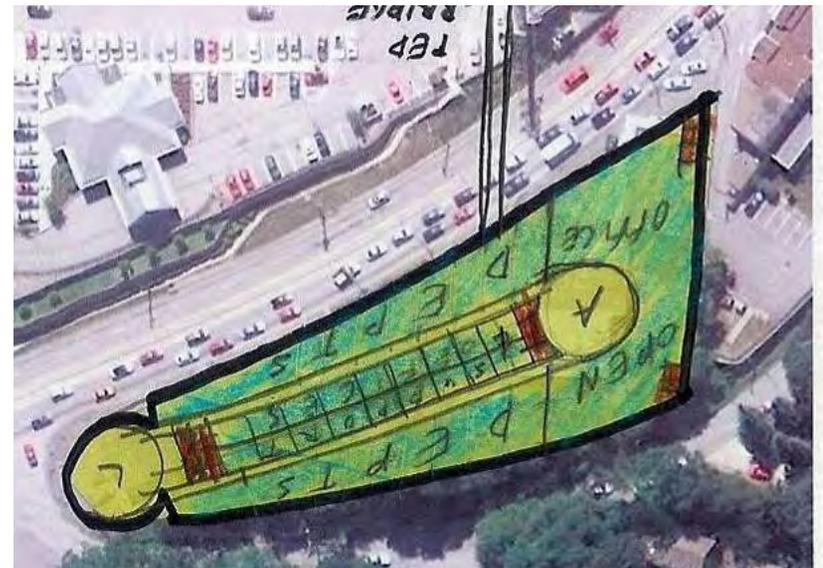
Brentwood Center

We see this center as a natural expansion of the commercial energy already emerging along Brownsville Road, including the recently built retail center just off the corridor. Over time we see all the properties lining the corridor being redeveloped into higher intensity commercial and higher density housing that can take advantage of the “crossroads” access and frequent transit. Fortunately many properties in this segment are at the end of their economic life, as evidenced by empty buildings and scattered tenants.

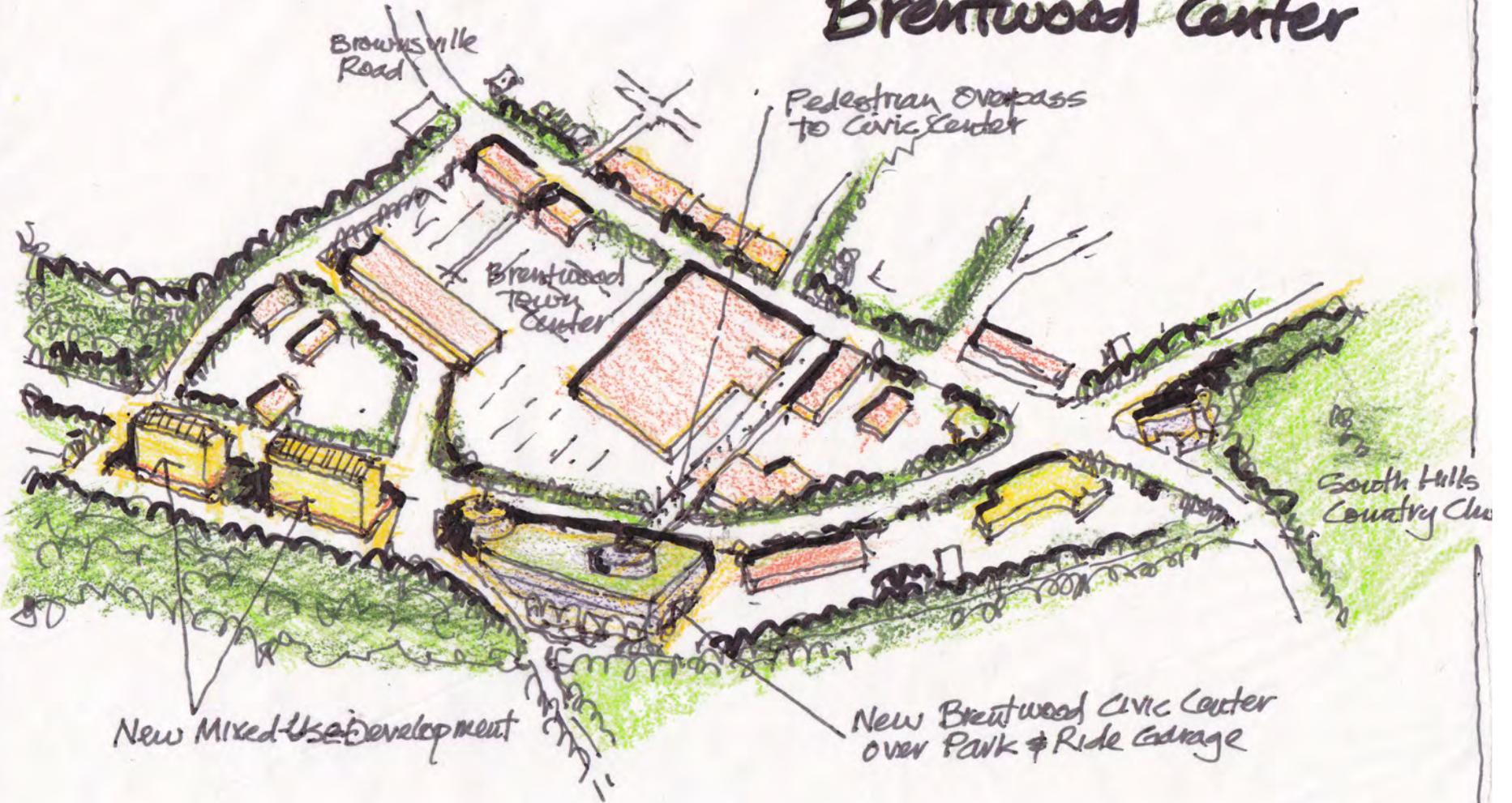
The City of Brentwood should consider jump-starting this process by making some strategic decisions. The first would be to locate a new town hall/civic center in a high visibility location on the corridor. This could include a parking structure that might be used during the weekday for commuters and nights and weekends for other uses.

Another action would be to change the zoning to allow higher density buildings (the current zoning has close to sufficient height limits, but only allows low-intensity buildings. New development standards should require urban amenities such as wide sidewalks, public spaces and ground-level retail in exchange for the increased density. We have illustrated an example of a multistory, mixed-use building with structured parking.

Finally, grants should be sought to construct a distinctive and broad pedestrian bridge connecting the current retail center to a civic center on the other side of the highway.

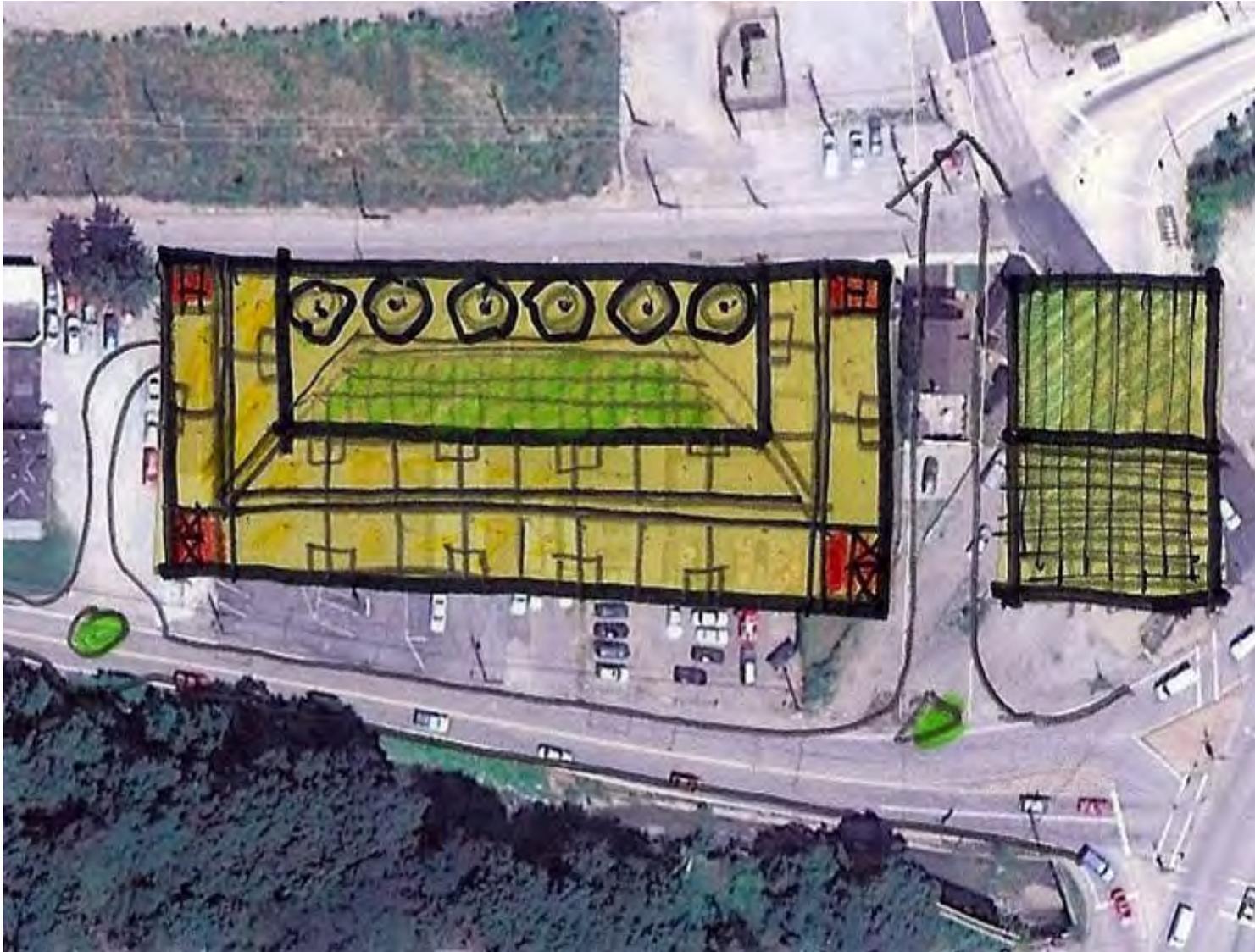


Brentwood Center



Area Around Highways 51 and 88 (Transit Oriented Development)

Our transportation section has suggested some significant re-routing of roadways and transit lanes. This is partly an expansion of changes already suggested by the State Department of Transportation (jug handle configurations). All these roadway realignments would have the effect of opening up parcels for redevelopment, with new, slower-moving side streets. Mixed use development could be encouraged through a combination of incentives and appropriate zoning. This area would also be excellent for a park and ride garage.



Pittsburgh Segment

We have identified several possible locations for small nodes that might include housing and commercial uses in greater intensities. The sloping topography in these locations would enable parking to be tucked under new development. We see these occurring particularly where stations for the light rail line and the busway are close together. In order to make these happen, some improved connections would be necessary.



WORKING TOGETHER: GOVERNANCE & LAND USE PLANNING

Nathan West

All of the municipalities along the Route 51 corridor are committed and motivated to improving the corridor. They are already working together and talking regularly.

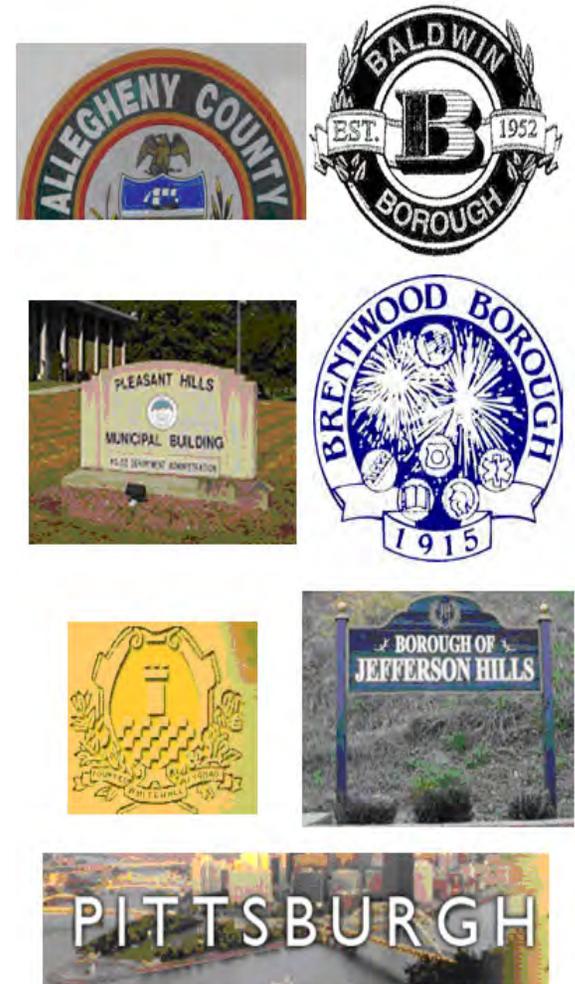
Municipalities are concerned about blight and traffic congestion. Inspection of the corridor reveals numerous problems contributing to these concerns. Most noticeable is the lack of landscaping dramatically emphasized by the prominence of asphalt and concrete. The visible green that does exist comes from weeds and invasive species proliferating throughout the corridor. Lack of planning in the form of site design is a major contributing factor in that a large percentage of the businesses have dysfunctional parking areas and access. Even newer developments lack any landscaping component. The lack of pedestrian access forces automobile access to all the businesses along the corridor. This further contributes to the congestion and overall dysfunctional nature of the corridor.

Corridor flooding was highlighted as a major corridor concern; however, it is quite apparent that the excess of paving and impervious surface is the primary contributor to this issue. Further contributing is the over-urbanization of Saw Mill Run Creek. Despite its multiple culvert crossings along the corridor this creek can easily be turned into a corridor asset that facilitates stormwater control, beautification, and the demonstration of healthy and vibrant urban area.

Throughout the corridor it is striking how many successful independently owned businesses are thriving and busy. With the exception of the regional mall, the retail

sector throughout the corridor appears to be relatively healthy considering the national economic downturn. Two strengths can be identified as part of this recognition. The first is that long standing business owners likely have a strong sense of pride relative to their success and with limited prodding can be converted into investment in the corridor. Additionally, the investment by national franchises throughout the corridor provides the jurisdictions with the opportunity ask that they step up as part of this corridor wide initiative and make a difference.

The most notable weakness is an entrenched neglect of the corridor. Overtime deterioration and poor planning has lead to blight and dysfunction throughout the corridor. This will be a major hurdle for all jurisdictions involved. The challenge is exacerbated by the slow growth rate and lack of development demand. A demonstrated commitment among jurisdictions to reinvent and revitalize the Route 51



Corridor is apparent in the multiple planning efforts that have occurred to date. Each of the jurisdictions involved has been part of either a comprehensive plan with objectives focusing on this corridor or a joint effort to establish a revitalization strategy. In addition to these planning efforts the jurisdictions have made preliminary commitments to cooperate in the form of intergovernmental agreements. Collectively these efforts establish a solid foundation to move in the direction of implementation.

Leader/Champion

Considering the complexity of the corridor and the multiple organizations involved, it is critical that one person or entity be agreed upon as the party responsible for overseeing the project. This could be an individual, a steering committee, government, or non-government entity. This step will result in accountability associated with assigning and completing tasks as well as orchestrating those group steps that need to be carried out. The responsible party must be a leader and champion for the project and commit to long term implementation and follow through.

Monitoring progress of the project will be important to maintaining momentum. Achievements should be following by multiple press releases from each jurisdiction which communicates a consistent message on the accomplishments.

The leader/champion of the project will also be critical to initiating funding requests supported by all jurisdictions involved. There is substantial influence that can be demonstrated with all jurisdictions working through this leader to seek funding.

A cohesive approach to communicating the project as a regional priority is also a significant piece of the formula for success.

RECOMMENDATIONS:

- One person or entity responsible for implementation
- Assigning tasks
- Orchestrating follow through
- Monitoring progress
- Applying for funding

Intergovernmental/NGO Agreement

Successful change in the corridor can only be achieved with a strong and clear commitment by each of the jurisdictions. Prior to SDAT review several jurisdictions already had an inter-governmental agreement in place. While this is a good start there are many factors lacking in the agreement.

Most importantly not all jurisdictions are included. Nothing in the multiple documents reviewed as part of this





study has indicated that there are relationship issues that would prevent a strong partnership scenario.



Still, a concerted effort will need to be made to bring others into the discussion. Success will result when all the jurisdictions are at the table

with a commitment to addressing each problem and how the group can collectively capitalize on change and improvement throughout the corridor.

The inter-governmental agreement will also likely need to expand to include non-government entities which are providing the focused leadership and follow through. It could include stakeholders and non-profits that will be champions and funding sources for the project.

In order to be most successful the agreement will need to address zoning, enforcement, signage, stormwater, revenue sharing, and a commitment to collectively seek funding. These components could be incorporated in one large agreement or individual subsequent agreements.

RECOMMENDATIONS

- Develop an intergovernmental agreement(s) to address: Zoning, Enforcement, Signage, Stormwater, Commitment to seek funding, Revenue Sharing

- Incorporate private sector, non-governmental and non-profit organizations into the agreement or in separate supporting agreements to strengthen ability to achieve follow through and financial success.

Building/Site Improvements

Improvements to buildings and structures along the corridor will make the most noticeable and immediate change. These changes will act as a catalyst inspiring additional investment and change in a desirable direction.

Painting/power washing

The most immediate opportunities for corridor improvement can result from private sector investment. Simply power washing and repainting the buildings along the corridor can demonstrate to the community that the jurisdictions are no longer just talking and planning, but, taking action that results in on the ground change.



The City of Port Angeles, Washington achieved this notable change in just one summer through the commitment of local business owners and leaders who established a program called Community at Work: Painting the Town. In the first summer of

this program, a total of 43 public and privately owned buildings were painted demonstrating a major revitalization of the City's downtown core. The organizers leveraged hundreds of volunteer hours and paint and equipment discounts from local suppliers.

Empty Storefront Displays

Throughout the corridor vacant buildings draw attention their empty interiors. Some of the buildings have insulation hanging from the ceiling while others have noticeably needed repairs. Rather than boarding up buildings or allowing views to remain the same, artistic displays can be placed in the windows. The art could be created by local students, artists, or public contests. It could also be a challenge to property owners that results in special recognition or awards incorporated to celebrate the improvements.

Litter Control/Community Service Workers

Litter is a problem throughout the corridor. Some properties appear to have been neglected for years relative to trash pickup. Saw Mill Run too has substantial garbage and debris that has a very negative visual impact for individuals passing through. Community engagement will be critical to ensuring local residents step in and voluntarily clean up private



and public properties throughout the corridor. The organization of semi-annual clean up days can make a significant and immediate improvement that demonstrates progress and forward movement to beautify and improve the corridor.

Enforce Property Maintenance Code

In some cases voluntary improvements will be difficult and property owners may be unresponsive. However, it is critically important that government take a responsible approach to any enforcement action. Both local government's and the public need to understand that past experience with property owners should not intimidate nor prevent opportunities for new and diverse ways of approaching property improvement. The momentum achieved by some of the easier implementation items noted above can stimulate interest and change without a strict enforcement approach.

Prior to initiating any enforcement action make certain there has been an effort to inspire the property owner to become part of the neighborhood wide improvements. Each jurisdiction along the corridor should have a strong approach to enforcement and a regulatory code to back it up. Some municipalities along the corridor already have this code in place.

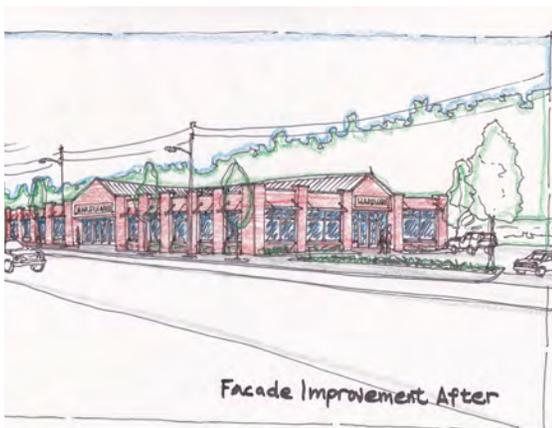
Enforcement can be a lengthy process so commitment must be made to long term follow through. Begin with friendly warnings and work up to fines and property liens. If this does not produce results consider condemning the property. Often

code infractions that support condemnation are not always visible or accessible to building inspectors. As a result, explore relationships with other local, state and federal regulatory agencies that may have justification for sufficient access.

Façade Improvements

A new program incentivizing face lifts to buildings throughout the corridor is very important. Such a program can be created through the U.S. Department of Housing and Urban Development Community Development Block Grant Program. Presently, the Pennsylvania Department of Community and Economic Development administers these federal funds. There are multiple local jurisdictions in the state that utilize these funds for façade improvement programs.

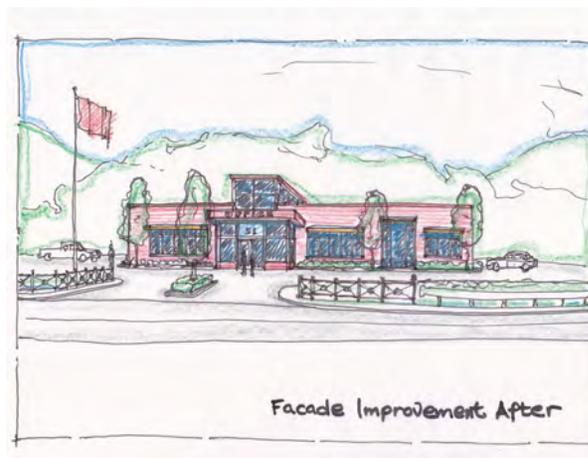
A new program can be established with Community Development Block Grant (CDBG) income or with a new CDBG grant. Ideally such a program would be a multi-jurisdictional approach that is built into an overarching



inter-governmental agreement. The program can be set up as a grant program or as a revolving loan fund. It can also build in incentives for replacement of signage.



The program can be a good mechanism to get the desirable and attractive improvements through a competitive process. Requirements can be made above and beyond standard



development code to ensure desired characteristics are being captured.

In Port Angeles Washington, the City utilized CDBG income to create a Façade and Signage Improvement Program. The program awards 50% matching grants for façade improvements with awards up to \$10,000. It also awards \$1,500 grants towards improved signage that replaces older dilapidated or unsightly signage. This method of corridor improvement is highly effective for areas where development demand is low and economic conditions are not conducive to property owner reinvestment.



Stormwater

The reality of development occurring in an environmentally sensitive area is that consideration for environmental systems must be weighed in all design considerations. The Route 51 Corridor lies in a naturally occurring ravine where watersheds from east and west drain directly into saw mill run. The creek itself has limited capacity to handle runoff especially due

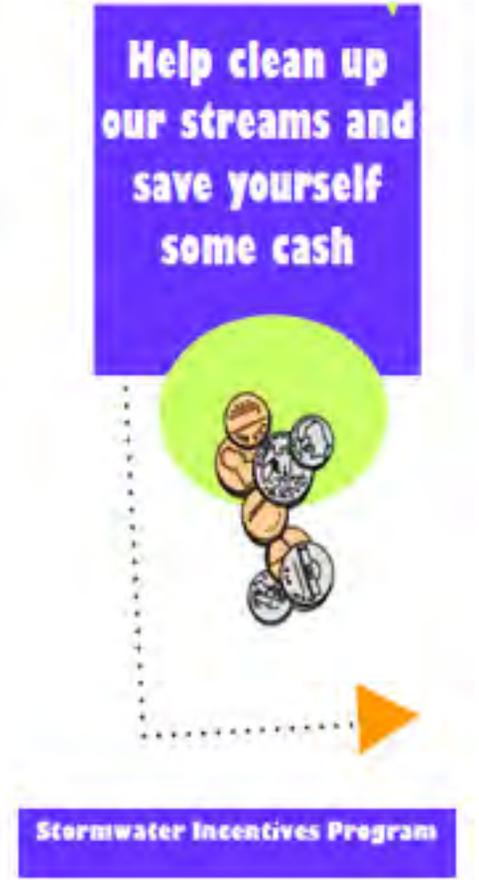
to governments and it is important to take a long term approach to each of the new requirements. In order to fund the required NPDES related changes a stormwater utility is probably the most sustainable mechanism to achieve compliance. The utility will enable a fee based system that rewards property owners based on performance. Stormwater retained and managed on site will result in financial credit. It is also important that new development respect environmentally sensitive areas. Steep banks and stream corridors should not be developed.

to disruption in natural drainage systems. The amount of pavement and impervious surface creates a flow that the modified creek system simply cannot support.

Through the corridor local jurisdictions are being required to implement a federal requirement known as the National Pollutant Discharge Elimination System. Intended to reduce non-point source pollution and stormwater related problems. This program will result in major changes for all jurisdictions that plan under such a permit. The specific requirements of the program are very demanding on local

Setbacks should be established for these areas to ensure adequate buffers are maintained.

The most fundamental change to improve stormwater challenges in the corridor is to remove excess impervious surfaces. Presently, paving and hard surfacing is excessive. The result is unmanageable stormwater runoff. Any code or regulatory changes associated with stormwater or a stormwater utility should build in incentives for removal of impervious surface.



RECOMMENDATIONS:

- Build incentives for retrofitting stormwater system
- Take advantage of NPDES Phase II stormwater permit requirements by implementing creative code changes that balance site improvements and incentives.
- Establish setbacks from streams and steep banks
- Remove paving with incentives

Permitting Process

An efficient and predictable permitting process is very important to the rejuvenation of the corridor. Immediate changes can effectively improve investment of the corridor however if regulatory or permitting related road blocks are apparent, investors will become frustrated and disinterested.

In order to see equitable and consistent improvement throughout the corridor an overlay zone agreed upon by each jurisdiction should be adopted. This will ensure predictability and consistent implementation all along Route 51. The zone should enhance the flexibility of development throughout the corridor.

The development of an overlay zoning for the entire corridor make take some time. For that reason intermediate steps to change codes for each jurisdiction should be explored. As part of the SDAT assessment, development codes for each of the jurisdictions along the corridor were reviewed. While one or two are supportive and efficient, the majority of the codes need significant overhauls. The City of Pittsburgh

has an efficient and simplified code that results in easy interpretation and concise presentation that will support investment in the corridor. Brentwood has clearly made an effort to require a higher development

standard. However, in an attempt to get it all they may have over-codified with requirements that may be difficult if not impossible to achieve. Other codes are extremely archaic and appear to still be produced with a typewriter. All codes should be available online and should be easily distributed in PDF file format. Zoning maps in support of the codes should also be made available online.

Many jurisdictions throughout the corridor need to reexamine their permit review process. Site plan approval for permitted uses should not have to go through planning commission. Any permitted use should be approved administratively by staff.

RECOMMENDATIONS:

- Develop an overlay zone providing consistency across entire route
- Permitted uses should receive administrative approval
- Zoning code/maps should be made available online for all jurisdictions

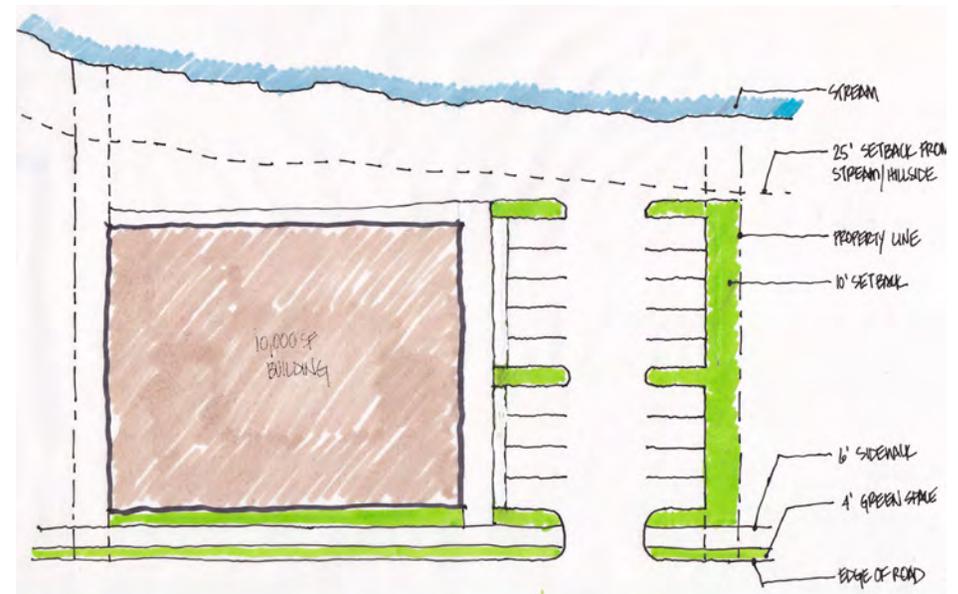
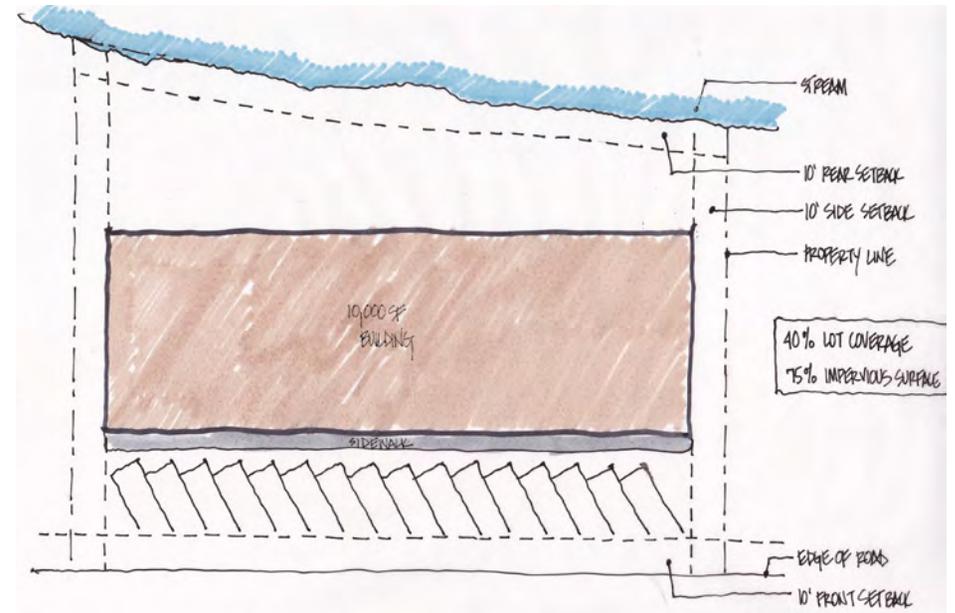


Site Design

When development opportunities arise the most important emphasis should be on capturing a high standard of site design. Throughout the corridor there are a number of missed opportunities where new developments have substandard site design. Corporate chains are accustomed to meeting or exceeding local requirements and requests. However, if you don't ask for it you won't get it.

All sites must be designed with a minimum of a 4' landscape buffer adjoining the Right of Way and a 6' sidewalk. Establishment of these features will result in substantial improvement to the feel of the corridor. Landscaping islands in parking lots should be required. Buildings and other site improvements should respect stream corridors and steep banks. Design guidelines and performance standards on site development can and should replace historic site development criteria such as setbacks and lot dimensional requirements.

Most jurisdictions presently have unnecessary setback requirements. With appropriate site coverage and landscaping requirements in place setbacks are rarely necessary in commercial development scenarios.



Minimums such as lot size and width should be reserved for subdivision code and should not limit commercial development on existing non-conforming lots.

Considering changes to zoning codes will be required, it is important to balance increased site developability with development standard enhancement. One example would be to increase height limitations in return for reduced impervious site coverage. Tradeoffs should be performance related.

RECOMMENDATIONS:

- Require minimum 4' landscape buffer & 6' sidewalk
- Eliminate setback requirements, minimum lot size/width
- Increase building height & lot coverage in exchange for less impervious surface
- Ensure benefits from increased thresholds

Implementation

Upon receipt of this report it is critically important that recommendations are identified, prioritized and followed up with action directing their implementation. It is important that a large number of these steps are immediately achievable. Both the public and private sector should be tasked with their share of responsibilities effecting change.

Government/NGO Implementation

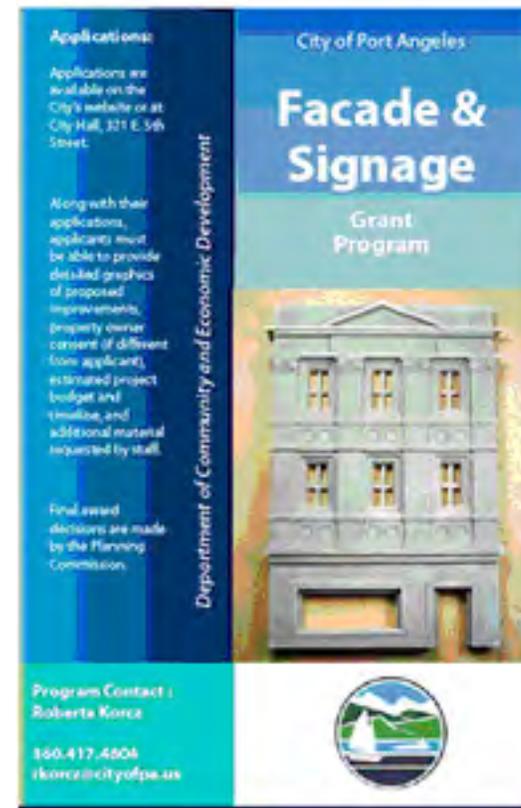
Government entities should reaffirm their commitment to improvements along the corridor. Based on information provided to the SDAT team the last resolutions

were passed in 2008. A dedicated commitment to the implementation of AIA SDAT recommendations is essential in order to keep the momentum going on implementation. Initial recommendations to local governments should be forwarded by a steering committee or project champion. Government entities should have the primary responsibility of engaging in intergovernmental agreements, modifying codes,

and keeping the public informed as to progress and implementation status. Press releases and public meetings are a good way to keep the public informed of the continuing progress.

Private Sector Implementation

Private citizens, business owners and property owners are in a unique position relative to implementation. They share appreciate for interest in business and property assets and they have the benefit of being unaffiliated with government. Property owners that are approached by individuals rather than government entities are more likely



to be supportive of the task at hand. The private sector has the ability to leverage the services and volunteer support of fellow business owners and property owners. Additionally, they have a greater ability to inspire participation and volunteerism.

- Immediate simple steps
- Prioritize recommendations
- Maintain momentum

TENTATIVE IMPLEMENTATION STEPS FOR CORRIDOR TRANSITION

1. Begin with some small projects that result in a noticeable difference. This may be clean up of one particular site or trash cleanup throughout the corridor.
2. Leverage the demonstrated success of initial projects in order to gain action in other parts of the corridor. Invite property owners to a public meeting where they are encouraged to be part of that success.
3. Work towards contacting problem property owners. Involve properties owners that have contributed initial success to contact those who have not. It may be beneficial to first sell the idea to friends or business partners of property owners with problem sites or buildings. Explore contact with tenants. It is critical that the private sector be involved in this contact. Initial approaches by government entities should be avoided unless proven successful relationships exist.
4. Create and establish an incentive program that entices businesses to make the desired improvements. This could be the Façade Improvement program noted below or a tax rebate program for certain changes. Governments should recognize that initial investments in incentives will result in improved tax values throughout the corridor. Ensuring a successful incentive program will demonstrate increases in tax revenue.
5. If each of the steps is tried and results in unsuccessful demonstration of change then a strong enforcement strategy should be developed.

RECOMMENDATIONS:

- Inspire public & private sector involvement
- Outreach

NEXT STEPS

This report goes into some detail making specific short and long term recommendations. We suggest the following first steps towards moving forward.

THINK SUSTAINABILITY! AND BUILD CONSENSUS AND PARTNERSHIPS

Read the report. Share it with your community boards, government, non-governmental partners, and citizens. Highlight the report. Identify what you like. Cross out what you hate. Write the ideas in the margins that inspire you.

Include everyone in the discussions, boards, citizens, property owners, regional players, institutions (e.g., the hospital), and local and regional foundations. Engage property owners early and often. They will be partners on some issues and probably opponents on some issues, but a working partnership, with room to agree to disagree, is critical.

Create a list of every single approach, recommendation, and idea in the report. Ask your partners to come together and rank all of those and create an action plan.

Identify what you will do in the next 90 days to keep the momentum going. Some low hanging fruit for early actions are:

- Façade washing and painting
- Village center gateway signage
- Street tree planting (Western PA Conservancy)
- Jefferson Hills Park & Ride to Zone I fare
- Some zoning changes (e.g., organizing tables for clarity and removing unneeded dimensional requirements)

- Narrowing the openings in the curbs at the sections of Route 51 with continuously open driveway cuts.
- Create a target list of zoning changes in the next five years (e.g., unified zoning approach on the corridor, upzone to allow more development in nodes, downzone to limit development in inappropriate areas).

Above all, in every conversation on government or NGO policy, expenditures, permits, and regulatory actions identify how those actions will further the goals of a revitalized Route 51 Southern Hills Parkway.

Three steps are critical to make this a success:

1. Build cross-community consensus. The most successful efforts require the greatest dialogue and community and property owner buy-in.
2. Don't let a daunting long term agenda prevent immediate action and concrete steps. You will never get community buy-in if there are not actions on the ground.
3. Keep you eye on the long-term prize of making Route 51 a model of sustainability. Don't let easy steps take you down the wrong road.

RE-PURPOSE ROUTE 51

Focus on the easy first steps of reducing curb cuts. Work with landowners and communities on the longer term goal of preventing and eliminating development in the areas that should be restored to natural streams.

Develop community forums and build momentum. Develop agreement with the Metropolitan Planning Organization (MPO), Pennsylvania Department of Transportation (PennDOT), municipalities, and state and federal legislators on the vision.

TRANSIT CONNECTIONS

Focus again on the easy things first. We want people to ride the bus and not drive the corridor but we charge those users more to use the only park-and-ride lot that creates absolutely no congestion, by having the highest bus fare for those who use the park-and-ride lot by the turnpike. Let's work to get this fare reduced (just at the lot itself, not elsewhere in that zone). What is the other lower hanging fruit?

The transit oriented development projects are longer term, but they will benefit the corridor economically and reduce traffic and increase transit ridership. Open dialogues with the MPO, Port Authority of Allegheny County, PennDOT, Pittsburgh Planning, and the relevant property owners to identify a path and move forward.

FOCUS DEVELOPMENT ON NODES

Move toward every measure you can to encourage dense development in the nodes. Start by getting rid of those aspects of zoning and regulations that are discouraging the very thing you need. Think about every dollar of public investment and every public or NGO action and look at it through the lens of whether it helps or at least is neutral to developing denser nodes or whether it harms this goal.

LIVE, PLAY AND WORK TOGETHER

Hold a workshop with all of the communities along Route 51 in the next 60 days. Build agreement on moving forward. Identify a lead agency who will be the facilitator and champion to move the project forward. Economic Development South is one obvious choice, but there may well be others as well.

Develop Intergovernmental Agreements (IGAs) and Memorandums of Understanding between government units and with non-government organizations (such as Western Pennsylvania Conservancy and Economic Development South) to formalize a partnership and figure out how to move forward on everything from big picture actions to creating shared information websites and consistent zoning.

Start working on identifying future funding. A quick brainstorming of possible sources includes:

- US DOT TIGER (Transportation Investment Generating Economic Recovery)
- US HUD CDBG (through Allegheny County)
- Fed/State Transportation Improvement Program (through the MPO)
- Federal Congressional and state legislative named projects
- Pennsylvania combined sewer overflow grants & loans
- Local sanitary sewer rates
- Local stormwater utility district
- FEMA and PEMA Hazard Mitigation (Federal AND Pennsylvania Emergency Management Agencies)
- Municipal tax increment financing
- FTA Multi-modal facility funding (Federal Transit Authority)

- Municipal and County Capital Improvement Programs
- Private investment (the biggest source, but one that often needs public dollars to leverage)

TEAM ROSTER

Allegheny Co. Sustainable Design Assessment Team Members



WAYNE FEIDEN, FAICP: SDAT TEAM LEADER

Wayne is the planning director for Northampton. He has led that city the highest “Commonwealth Capital” score, the Massachusetts scoring of municipal sustainability efforts. Wayne also has a small

consulting practice focused on municipal planning and sustainability.

Wayne serves as an adjunct faculty at the University of Massachusetts and Westfield State College. Wayne’s publications include three American Planning Association’s PAS Reports and other peer-reviewed and research papers. His work for the APA on Assessing Local Government Sustainability is in process. Wayne has participated on or led 13 design assessment teams.

Wayne has BS in Natural Resources from the U. of Michigan and a Masters in Regional Planning from the U. of North Carolina. His Eisenhower Fellowship to Hungary and Fulbright Scholarship to South Africa both focused on sustainability. Wayne was inducted into the AICP College of Fellows in 2008. He was awarded an American Trails National Trails Award in 2010.

MARK HINSHAW, FAIA, FAICP: URBAN DESIGN & STREETSAPES

Mark is an architect and the director of urban design and a principal at LMN Architects. He has had an influential career spanning architecture, planning, and journalism. His consulting practice at LMN Architects spans design and planning.



For 35 years, Mark has combined his background as an architect with his skills as a city planner to help communities understand growth and development choices. He has gained increasing prominence and regard as a speaker and writer, in a variety of local, national, and international media. While his popular column in The Seattle Times has brought Seattleites a fresh look at the phenomena of their own city, designers from around the nation and the world have gained their impressions of Seattle’s urban achievements from his writings in Architecture, Architectural Record, Landscape Architecture, and other professional journals. Mark has described the influences that have shaped his unique way of looking at cities in a wide-ranging view that spans the urban horizon “from public policy to social psychology.”

Mark holds B. Arch. from the U. of Oklahoma and a Masters in Urban Planning from Hunter College/CUNY. Mark was inducted into the AIA College of Fellows in 1994 and the AICP College of Fellows in 2000. He served as AIA Seattle President 1992-93.



TOMMY LINSTROTH, LEED® AP: SUSTAINABLE DEVELOPMENT

Tommy's career has spanned both the private, academic, and non-profit sectors in the Midwest, West and now East coast, where he is the Principal of Trident Sustainability Group – a triple bottom line

consultancy firm. Tommy is responsible for overseeing all aspects of Trident's client sustainability solutions—from minimizing organizations carbon footprint to managing sustainable development projects. Mr. Linstroth has been involved with over 50 LEED, projects nationwide, certified or under development. These projects include the first all-retail LEED shopping center in the nation, the first LEED McDonald's restaurant, and Sustainable Fellwood, one of the largest green affordable housing developments in the nation.

Tommy is the founder and past-chairman of the USGBC – Savannah, and is Chair of the newly formed USGBC – Georgia chapter. He serves on the board of directors for the Georgia Conservation Voters and the Live Oak Public Libraries and on the Chatham Environmental Forum, the Mayor's Healthy Savannah Initiative and the Creative Coast Advisory Board. Tommy is a frequent speaker on green building throughout the country. He co-authored the book Local Action: The New Paradigm in Climate Change Policy, and was a contributing author to The Green Building Bottom Line. He is the founder of RehydrateUS, an initiative to reduce building water consumption by 1 billion gallons per day.

TOM VON SCHRADER, PE, LEED® AP: DESIGN WITH NATURE

Tom brings 29 years of experience in implementing sustainable visions that balance community development needs, right-of-way demands, and environmental objectives in corridor, streetscape, and

civic enhancement projects. His design experience focuses on establishing and meeting performance standards across the overlapping systems of mobility, water (drainage), community, habitat, energy and geology. Tom's thoughtful leadership and collaborative management style help project teams implement cost-effective, sustainable solutions that meet our clients' goals in Seattle and nationally.

Tom's projects include every aspect of roads, complete streets, parking, stormwater and LID, integrated corridor treatments, green streets, and other infrastructure. Tom has presented at numerous conferences and workshops on sustainable streets, green streets, and green infrastructure and has participated in coordinated numerous design charrettes.

Tom has a BA in Biology from Kenyon College and a BS in Civil Engineering from the University of Iowa.





NATHAN A.WEST, AICP: LAND USE & GOVERNANCE

Nathan has over 14 years of urban and regional planning experience in demanding and high profile planning positions. He is presently the Director of Community and Economic Development for the City of Port Angeles. In this position, he oversees the

Building, Economic Development, Planning, and Cultural resource divisions of the City's Community and Economic Development Department. Prior to coming to the Port Angeles Area, Nathan managed the Policy Development Section of the Cayman Islands Government Planning Department.

Nathan has a long history of policy development and regulatory reinvention with the development of incentive based municipal codes and policy documents. Throughout his planning career he has been responsible for the development of local, regional, and national long range and comprehensive plans in the U.S. and abroad. In Washington State he has worked to creatively address regulatory requirements and land use barriers. In the Caymans, Nathan was part of the Governor's Vision 2008 Round Table developing a strategy for the sustainable development of all three Cayman Islands.

Nathan has a BS in Environmental Science from Willamette University and a Masters in Urban and Regional Planning from the U. of Tennessee.

JASON SCHRIEBER, AICP: SUSTAINABLE TRANSPORTATION

Jason is a principal at Nelson/Nygaard and has over 14 years of private and public sector experience in the Boston area and nationally. He provides multi-modal planning and design skills with a unique understanding of

municipal needs, private development priorities, and local neighborhood concerns. He brings a strong focus in parking policy and management, transit-oriented development, and multi-modal downtown planning.

Previously, Jason worked in the City of Cambridge, where he managed all planning activities for the City's transportation department. Known for its progressive transportation planning policies and leading infrastructure installations, Cambridge's historic street layout and land uses were an excellent laboratory for testing multi-modal access strategies for infill development, developing commercial and residential TDM plans, and installing traffic calming measures. Today, Jason leads downtown planning projects in places like Portland ME, Ithaca NY, Reading MA, and Denver CO.

Jason has a BS in Urban Planning from the U. of Massachusetts.



JOEL MILLS: DIRECTOR, AIA CENTER FOR COMMUNITIES BY DESIGN

Joel provides process expertise, facilitation and support for the Center’s Sustainable Design Assistance Team and Regional and Urban Design Assistance Team programs. He works with AIA components, members and partner organizations to provide technical assistance to communities across the country on sustainability and urban design.

Joel’s expertise is in civic health. His experience includes community-based technical assistance, process design, facilitation and training across a number of fields including juvenile justice reform, local government, education, family strengthening, civic media and emergency management. Joel spent several years supporting international democratization initiatives by providing technical assistance to parliaments, political parties, local governments, civic and international organizations. His scope of work included constitutional design and governing systems, voter and civic education, election monitoring and administration, political party training and campaign strategy, collaborative governance, human rights and civil society capacity building. He maintains active memberships in the International Association of Facilitators (IAF), the International Association for Public Participation (IAP2), and the National Coalition for Dialogue and Deliberation (NCDD). He also serves on several public and private boards. His work has been featured on ABC World News Tonight, Nightline, CNN, The Next American City, Smart City Radio, The Washington Post, and other media.

ERIN SIMMONS: DIRECTOR, AIA DESIGN ASSISTANCE

Erin provides process expertise, facilitation and support for the Center’s Sustainable Design Assistance Team and Regional and Urban Design Assistance Team programs. In this capacity, she works with AIA components, members, partner organizations and community members to provide technical design assistance to communities across the country. To date, Erin has served as staff lead on over 35 design assistance teams.

Previously, Erin worked as senior historic preservationist and architectural historian in Georgia, where she practiced preservation planning, created historic district design guidelines and zoning ordinances, conducted historic resource surveys, and wrote property nominations for the National Register of Historic Places. She has a BA in History from Florida State University and a Master’s degree in Historic Preservation from the University of Georgia.

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The Borough of Jefferson Hills

The City of Pittsburgh

Pleasant Hills Borough

West Mifflin Borough

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Penn Future