



Hill Uptown Oakland Multimodal Connectivity Assessment

submitted to

Oakland Planning and Development Corporation (OPDC)

Pittsburgh, PA

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HILL DISTRICT, UPTOWN, AND OAKLAND NEIGHBORHOOD MULTIMODAL CONNECTIVITY ASSESSMENT

Prepared for:



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I. EXECUTIVE SUMMARY

Oakland Planning and Development Corporation (OPDC) has contracted with CDI Infrastructures LLC d/b/a L.R. Kimball (L.R. Kimball) to conduct an assessment of multimodal connections within and between the neighborhoods of the Hill District, Uptown, and Oakland in the City of Pittsburgh, Allegheny County, Pennsylvania. OPDC is the client on behalf of and in full partnership with Uptown Partners of Pittsburgh (UP) and Hill House Economic Development Corporation (HHEDC). Together, OPDC, UP, and HHEDC form the Pittsburgh Central Collaborative (PCC) and have jointly commissioned this study.

PCC has expressed a desire to transform this multi-neighborhood study area from an automobile-dominated transportation network to one that has a more balanced transportation system with substantial equity in sharing the roadway between motor vehicles, bicycles, and pedestrians. The intent is to apply a “complete streets” approach to the major transportation corridors and neighborhood collectors that will lead to significant improvements in the level of service and safety not only for motor vehicles, but more importantly, for bicyclists and pedestrians. In recent years the city, working with bike advocacy groups, primarily Bike PGH, and community groups, has put in place measures to make the city more bike and pedestrian friendly. These efforts include passing a bike-parking ordinance in 2010 that mandates a provision of bicycle parking facilities for new developments in the City, and installing bike lanes and “sharrows” (combination bike and motor vehicle lanes) along some of the city’s major travel corridors, thereby connecting on-street bike networks throughout the city. These efforts were recognized this year when the American League of Bicyclists awarded the City its “Bronze Level” Bike-Friendly Community Award. While the City has demonstrated a strong commitment to cycling, there is room to grow with much effort required to connect the missing links within the network. To that end, the City has embarked on a bike route and signage strategic plan that aims to develop a protocol of bicycle routes and signage systems with emphasis on destination and distance signage. L.R. Kimball is currently assisting Tool Design Group to develop the City of Pittsburgh’s Bicycle Master Plan.

The City has additionally given voice and meaning to the disparity between multimodal transportation and acknowledged that an automobile dominated transportation system is not sustainable. To that end, city officials have embarked on a paradigm shift of moving people, goods, and services as opposed to focusing on only moving motor vehicles. This multi-neighborhood study is adhering to the City’s and PCC’s goal by identifying major trip origins and destinations within the study area. There might be opportunities to improve connectivity from one land use to the other, such as from residential neighborhoods in the Hill District and Uptown to the proposed grocery store in the Lower Hill; or to other retail shopping areas within the study area; or between medical and educational institutions; or simply between neighborhood places. This study provides recommendations to offer residents with more travel choices, allowing them to take shorter, more direct routes on foot, by bicycle, or public transportation to surrounding destinations.

Research data from the 2008 American Community Survey shows that the number of pedestrians and bicyclists commuting to work has increased in the City. According to the survey, Pittsburgh ranks 16th

(1.0%) in the country for commuters who bike to work and 2nd (12.4%) that walk to work. The number of bikers and walkers are expected to grow if the momentum for a bicycle and pedestrian-safe community continues. However, there are still multiple challenges for both pedestrians and bicyclists. Within this multi-neighborhood study area the existing transportation network can best be described as narrow curvilinear streets with difficult topography that can pose significant mobility challenges for pedestrians and bicyclists. Our assessment of these conditions has revealed that there are still significant gaps in the bicycle and pedestrian network, especially as they relate to transit stations and bus stops, parks, playgrounds, and major institutional and commercial destinations. With increases in bicycle and pedestrian traffic, there have been more conflicts with motor vehicle traffic at intersections. Speeding and aggressive driving continue to pose an added danger to all. Public outreach to motor vehicle drivers to share the road and respect the rights of bicyclists and pedestrians should continue to be a high priority for the City and bike advocates. Within the study area, L.R. Kimball conducted multiple field views of the multimodal transportation network and the following issues stand out:

- Lack of continuity of bicycle routes and inadequate bike parking at key destinations and places frequently used by pedestrians and bicyclists
- Lack of destination and distance bike signage and generally poor signage design.
- Inadequate and infrequent bike signage in bike corridors
- Lack of continuity of pedestrian sidewalks at certain locations
- Sidewalk disrepair and obstructions, including discarded household items and overgrowth at certain locations
- Narrow sidewalks at some locations that do not meet the demands of peak pedestrian surges, particularly at certain intersections along the Fifth/Forbes corridor adjacent to the retail district and institutions
- Inadequate separation between vehicle travel lanes and sidewalks at some locations.
- General lack of adequate north-south connectivity to destinations in the Hill District and Uptown neighborhoods for pedestrians, bicyclists, and transit
- Lack of pedestrian-scale lighting and attractive streetscapes in key retail sectors along Fifth Avenue, Forbes Avenue, Centre Avenue, Kirkpatrick Street, and Herron Avenue.
- In some locations, consolidation of bus stops might be necessary and installation of bus shelters and benches is recommended
- Lack of pedestrian and bicycle accommodations at many of the critical intersections due to inadequate signage and signal accommodations
- Antiquated traffic signal installations (hardware and software) at many of the signalized intersections

All of the above issues led us to focus our attention on the major east-west and north-south corridors generally, and to put more effort on specific street sections, critical intersections, and established retail corridors where opportunities exist to improve connectivity and safety.

In conclusion, field investigations have led us to recommend immediate improvements in safety and connectivity at key street sectors and intersections and have also identified more capital improvements for future study and implementation. Since the optimum trip length of pedestrians is generally $\frac{1}{4}$ to $\frac{1}{2}$ mile from origin to destination, proper signage and route delineation for both pedestrians and bicycles is vital for navigating the congested intersections and corridors within the study area. Therefore, safety and connectivity improvements in this report run the gamut from restriping pedestrian crosswalks, repairing sidewalk sections, cleaning sidewalks of debris and unwanted shrubbery, installing more pedestrian and bike friendly signage at intersections, and modifying signalized intersections to accommodate pedestrians and bicyclists through low-cost physical and signal improvements.

II. INTRODUCTION

A. Study Background

The idea for this study and the specific transportation goals were developed at a meeting with Oakland Planning and Development Corporation (OPDC), Uptown Partners (UP), Oakland Transportation Management Association (OTMA), Hill House Economic Development Corporation (HHEDC), and the Pittsburgh Community Reinvestment Group (PCRG) in July 2010. The purpose of the meeting was to have a discussion about multimodal connectivity and travel choices within and between the three neighborhoods in support of existing and future economic development.

A Scope of Work (see **Appendix F**, Scope of Work) was prepared by L.R. Kimball listing tasks that included review of existing studies, identification of major destinations, identification of existing overall connectivity issues and opportunities, including missing or inadequate transit, pedestrian and bicycle connections between key destinations, identifying major origins and destinations within the three neighborhoods where there might be opportunities to improve connectivity from one land use to the other, such as from residential neighborhoods in the Hill District and Uptown to the proposed grocery store and new YMCA on Centre Avenue in the Lower Hill District, or to other retail shopping districts along Forbes Avenue in Uptown, and Forbes Avenue and Craig Street in Oakland; or to a recreational facility, or between medical and educational institutions, or simply between neighborhood places. Other tasks included assessment of transit connectivity, bike connectivity, and pedestrian connectivity on the major east west and north-south arterials and collectors, and identification of short-term and long-term improvements.

B. Study Area

The study area is shown in **Appendix A**. It represents the cultural, economic, and institutional center of the City of Pittsburgh. It is home to quiet neighborhoods, busy commercial corridors along the Forbes / Fifth corridor, Centre Avenue, and Craig Street. The neighborhood of Oakland is Pennsylvania's third largest downtown. It contains the state's largest medical facility; the University of Pittsburgh Medical Center (UPMC), as well as Veterans Hospital, Magee Women's Hospital; academic institutions including the University of Pittsburgh, Carnegie Mellon University, Carlow University, and public elementary and secondary schools. Pittsburgh's Uptown neighborhood is home to Duquesne University, UPMC Mercy Hospital, as well as the newly constructed Consol Energy Center, the home of the Pittsburgh Penguins hockey team. The Hill District is home to key destinations of its own including the Hill House, Kaufmann's Auditorium, Consol Energy Center, and Carnegie Library (Hill District Branch), the proposed YMCA Center, and Shop 'n Save supermarket in addition to many faith-based destinations. Most of the regional roadways run in an east- west direction and all are heavily automobile oriented with design features that do not adequately address bicycle, pedestrian, transit, and handicapped user needs.

As shown in **Appendix A**, the study area is generally bounded by Washington Place on the west, Bigelow Boulevard and Baum Boulevard on the north, Morewood Avenue / Boundary Street on the east, and the Boulevard of the Allies on the south. Because of budget constraints and the large size of the study area, this assessment will focus on the major east west and north-south corridors, with specific emphasis on corridors that have major barriers or significant multimodal connectivity challenges. Major east-west corridors are Bigelow Boulevard, Boulevard of the Allies, Forbes Avenue, Fifth Avenue, Centre Avenue, Wylie Avenue, Webster Avenue, and Bedford Avenue. Major north-south corridors include Washington Place, Crawford Street, Develliers/Dinwiddie Streets, Kirkpatrick Street, Herron Avenue, Bellefield Street, Craig Street, Bigelow Boulevard, Craft Avenue, and Neville Street/Boundary Street.

Neighborhoods contain a generally complete network of east-west streets, sidewalks, and to some extent, bicycle routes. This allows for multiple means of access and circulation for pedestrians, including handicapped persons, cyclists, transit users, and automobiles. There are many gaps in this network, however, and current design features and difficult topography do not encourage safe and enjoyable pedestrian and bicycle travel in many cases, particularly between Uptown and the Hill District, Oak Hill and the Middle Hill District, or between South Oakland to North Oakland.

Major arterials include Boulevard of the Allies, Bigelow Boulevard, Forbes Avenue, Fifth Avenue, Centre Avenue, Wylie Avenue, Bedford Avenue, and Webster Avenue. These roadways connect the three neighborhoods to one another and to the central business district in the west, and the neighborhoods of Squirrel Hill, Shady Side, and East Liberty to the east. Appendix C shows the existing street network in the study area.

Average Annual Daily Traffic (AADT) for the major east-west roadways was obtained from PennDOT and includes Bigelow Boulevard between Washington Place and Bloomfield Bridge with a total two-way Average Annual Daily Traffic (AADT) of **23,684**; Boulevard of the Allies between I-579 and I-376 with a total two-way AADT of **46,424**; Centre Avenue between Washington Place and Negley Avenue with a two-way AADT of **6,535**; Forbes Avenue between Craft Avenue and South Craig Street with a one-way AADT of **20,272**; Forbes Avenue between Washington Place and Kirkpatrick Street with a one-way AADT of **11,148**; Fifth Avenue between Bellefield Avenue and Birmingham Bridge with a one-way AADT of **19,975**; and Fifth Avenue between Kirkpatrick Street and Sixth Avenue with a one-way AADT of **12,337**. (Source: PENNDOT, and please refer to **Appendix C**). Pedestrian, bicycle, and transit connections between North and South are hampered by the lack of direct roadways that run through the entire area due in part to the steep terrain.

Forbes Avenue and Fifth Avenue operate as a one-way pair with Forbes Avenue running in an easterly direction from the central business district to Bellefield, while Fifth Avenue runs in a westerly direction from Bellefield to Sixth Avenue in the central business district. Sidewalks are provided throughout and are in varying degrees of repair and functionality. Sidewalks are directly adjacent to the street curb line

and in most cases provide direct connections to adjacent land uses. Lack of maintenance and repair were observed on some sections of sidewalks on Forbes Avenue, Fifth Avenue, Centre Avenue, Bedford Avenue, Wylie Avenue, and Webster Avenue. A sidewalk enforcement and maintenance program for the city would go a long way in maintaining the repair and look of sidewalks throughout the study area and citywide.

C. Study Purpose

The purpose of this study is to assess the pros and cons of multimodal connectivity between major destinations within and between the Hill District, Uptown, and Oakland neighborhoods in the City of Pittsburgh.

Tasks for this study included:

- A summary review of existing pertinent studies.
- Work with the study stakeholders to identify major existing destinations and future projects in the horizon.
- Work with the study stakeholders to identify existing overall connectivity issues and opportunities.
- Identify major origins and destinations and identify opportunities to improve connectivity between land uses.
- Provide a general assessment of existing transit, pedestrian and bicycle connections.
- Identify short-term projects that can be easily implemented by municipal and/or neighborhood officials.
- Develop a list of capital projects that can be used as case studies for future multimodal improvements.

L.R. Kimball mapped the suggested project locations as well as mobility opportunities and constraints, including existing and planned bicycle and pedestrian facilities, significant sidewalk and pathway gaps, key destinations generating pedestrian and bicycling activity, underserved residential areas, and proposed city projects that could present opportunities to improve bicycling and walking conditions.

D. Approach

This connectivity study includes assessing the major east west and north-south connections not only for vehicular traffic, but most importantly, for pedestrians, bicyclists, and transit riders. Three (3) field investigations of the entire study area were undertaken by L.R. Kimball staff, including: photographic documentation of major destinations; pedestrian sidewalks and trails; bicycle routes, signs, traffic signal installations, bicycle parking facilities, existing pedestrian amenities, daytime street activity, transit routes; key junctions; major intersections; conflict points; and hot spots. On one of these field investigations, Bike PGH accompanied L.R. Kimball staff and provided valuable input into connectivity

problems currently encountered by bicyclists and some of the potential solutions being considered. As noted, the study area includes major east west and north-south arterials and collectors with several critical destinations at key junctions along the way. The existing major arterials and collectors traverse the neighborhoods of the Hill District, Uptown, and Oakland. These three neighborhoods constitute quite a large land mass with several transportation features and challenges. Because of the size of the study area, it was decided from the beginning to focus our multimodal assessment to a predetermined number of known problem areas in order to keep within the financial constraints of this study budget.

E. Previous Studies

Kimball conducted summary reviews of the following documents:

- **Allegheny Places: The Allegheny County Comprehensive Plan:** Allegheny Places is Allegheny County's first comprehensive plan. It establishes an overall vision for our future and a roadmap to get there. The comprehensive plan provides the County with a framework for the strategic use of public resources to improve the quality of life for all residents. The plan consisted of multimodal transportation, economic development, land use, and parks and recreation components.
- **Eastern Corridor Transit Study:** Port Authority of Allegheny County (PAAC) and the Southwestern Pennsylvania Commission (SPC) along with other regional partners undertook the above transportation-planning project to identify public transportation needs and community concerns in a study area that included the Hill, Uptown and Oakland neighborhoods. The study developed a long and short list of alternatives. The short list included improvements to existing transit systems to encourage more ridership, and the long list included new investments in the transit network covering the entire study area. Pertinent to the connectivity study area are the East Busway Corridor which consists of a light rail line from downtown Pittsburgh to Monroeville with a spur to Oakland; and the Spine Line Corridor which consists of an underground light rail line from the north Shore through downtown Pittsburgh to Wilkesburg following the general alignment of Centre Avenue, Forbes Avenue, and Braddock Avenue to the East Busway Wilkesburg Station.
- **Spine Line Corridor Study:** Completed in 1993 to study bus and light rail alternatives for improved transit in an eight-mile corridor between downtown Pittsburgh and Squirrel Hill, Oakland, Hill/Midtown and several North Side neighborhoods. A follow-up major investment study (MIS) began in 1995 but was cancelled in 1996 at the direction of the PAAC Board of Directors
- **Pittsburgh Penguins Arena Final Traffic Report:** The Penguins organization commissioned traffic and parking impact study of the New Consol Energy Center to determine the need for improvements as a result of relocating the venue for hockey games from the Mellon Arena to

the new location at the corner of Washington Place, Fifth Avenue and Centre Avenue. The study included several tasks, including manual turning movement counts, pedestrian movement counts, traffic projections, and future design year analysis. The study recommended several improvements to mitigate the impacts of the new arena.

- **Uptown Vision Plan**
- **Oakland Transit Whitepaper, OTMA**

III. STUDY AREA NEIGHBORHOODS

A. Hill District

The Hill District neighborhood consists of five (5) distinct neighborhoods; Crawford Roberts, Middle Hill, Bedford Dwellings, Upper Hill, and Terrace Village (now known as Oak Hill). Together, the Hill District has a population of over 11,000 residents (2000 Census). The Hill District has long felt isolated from the rest of the city. Years of disinvestment, crime, and deterioration of housing and commercial stock have created barriers for development and reinvestment in the Hill District community. However, large-scale redevelopment projects, such as the new Consol Energy Center, reinvestment in neighborhood institutions and commercial and housing structures such as the new branch of the Carnegie Library at the corner of Centre Avenue and Kirkpatrick Street, One Hope Square on Centre Avenue, renewed interest in urban living as evidenced by the very successful Crawford Square, Oak Hill Phases 1 and 2, the Lou Mason replacement housing, new housing development on Wylie Avenue in the Middle Hill, and new town houses on Dinwiddie have laid the foundation for a rebirth of the Hill District.

Added to this landscape are the proposed new Thelma Lovette Family YMCA development to be located on the south side of Centre Avenue between Addison Street and Elmore Street, the proposed new Shop 'n Save supermarket to be located at the southeast corner of Centre Avenue and Heldman Street and adjacent to the existing "Triangle Shops" on Centre Avenue, and the proposed Pittsburgh Arena District Master Plan Development at the Lower Hill's 28-acre site currently occupied by the Mellon Arena. These developments are expected to become major regional destinations as well as for residents of the Hill District. The Hill District is also home to many religious institutions that become major destinations for residents and worshipers on Sundays.

B. Uptown

The Uptown neighborhood is a 1.5-mile stretch of residential, retail, and institutional destinations between Oakland and Downtown Pittsburgh, with a population of 6,423 (2000 census) As so aptly stated on the webpage of Uptown Partners and the Uptown Vision Plan, it has an eclectic mix of old-time residents, university students, artists, high-tech startup entrepreneurs, human service non-profits, multi-generational wholesale companies, and pioneering families with a penchant for transforming communities. Tucked into quaint streets, are 19th century row homes in a range of conditions—many vacant, some at risk for demolition, and others nicely rehabbed.

Having lost more than half its population, the community envisions a significant increase in mixed-income housing as well as mixed-use commercial development. Vacant storefronts along the main corridors of Fifth and Forbes are waiting to become restaurants, coffee shops, galleries, and retail destinations for those who live and work here, or visit. Residents, businesses, and institutions are

determined to create a dynamic residential and commercial core through high quality, integrated and sustainable development, greening, and art.

Major destinations include Duquesne University (pop.10,000 students), and according to the Vision Plan, continues to spur economic development with real estate projects like the Power Center on Forbes Avenue. With a strong mission to serve and be a steward of the environment, Duquesne University is committed to the community's viability and is expected to grow its campus and student population in the future. Another institutional anchor is UPMC Mercy, which also has long-range goals to expand its services and footprint. This facility has a world-class trauma and burn center, and in 2009 absorbed the UPMC's South Side facility to grow a workforce by 300 new employees. Also, Uptown shares bragging rights with the Hill District for housing the new home of the Pittsburgh Penguins Hockey club at the new state-of-the-art Consol Energy Center, which also serves as the venue for major entertainment events that, expects to draw approximately 18,000 patrons for a full house. The combination of these various attractions is expected to provide more impetus for new investments in Uptown, mostly along the Fifth/Forbes corridor, which will generate a greater need for more pedestrian and bike connectivity.

The Vision Plan also notes that over 50,000 commuters pass through Uptown every day and the Fifth/Forbes corridor is one of the highest-performing bus routes in the Port Authority system. The community is working with PAAC for even better service delivery in the form of a Bus Rapid Transit (BRT) through the Fifth/Forbes corridor. Uptown's other great asset is its convenient location between Oakland and Downtown and linkages to the Hill District, South Side, and major east- west thoroughfares. Uptown holds a great opportunity for significant improvements in bicycle and pedestrian connections throughout the east-west and north-south roadway network.

C. Oakland

The Oakland neighborhood consists of West Oakland, South Oakland, Central Oakland, and North Oakland. Together, Oakland has a population of just over 20,000 (*2000 Census*) residents. Oakland is the academic, cultural, and healthcare center of Pittsburgh and is Pennsylvania's third largest "Downtown" with a daytime population of approximately 125,000, which far exceeds its residency due to commuting students, patients, visitors, professors, and staff. The neighborhood is urban and diverse and is home to several universities, museums, and hospitals, as well as an abundance of shopping and restaurants. The main destination is the campus of the University of Pittsburgh, (The Cathedral of Learning, Hillman Library, Forbes Quadrangle, Peterson Events Center during basketball games and other events, Alumni Hall, and the soon-to-be-open Olympic Sports Complex). Other major destinations include the Carnegie Museum and Library, Carlow University, University of Pittsburgh Medical Center Hospitals (Montefiore, Magee Women's, Presbyterian, and Western Psychiatric Institute), Schenley Park, Phipps Conservatory, and the University of Pittsburgh Field House. Central Oakland is heavily populated during the day by pedestrians and bicyclists. Anticipated future development includes a master development plan for

the University of Pittsburgh, the University of Pittsburgh Medical Center, and private developments, including the Oakland Portal Development, to be located west of the intersection of Craft Avenue at Forbes Avenue, and at Fifth Avenue.

Oakland is also made up of many unique residential neighborhoods. There are high-rise condominium and rental apartments as well as traditional single-family residential enclaves. In addition to a significant student rental population, Oakland is home to young professionals, long-time residents, families, seniors, empty nesters, and new immigrants.

IV. MAJOR CONNECTIVITY CHALLENGES, ISSUES, AND OPPORTUNITIES

The sections that follow detail results of three (3) field views conducted by L.R. Kimball staff, one with Bike PGH and the other with the Port Authority’s assistance during the summer months of July and August 2010. The field views covered the entire study area shown in **Appendix A**. This assessment addresses the major recurring connectivity issues observed by L.R. Kimball staff at multiple locations throughout the three (3) neighborhoods. It is hoped that results of these field views will be used as a platform to launch more detailed analysis of specific capital projects that support economic development sectors in each of the three neighborhoods. It was readily apparent from the outset that current conditions pose significant barriers at certain locations and do not adequately meet bicycle, pedestrian, or transit user needs. The roadway network was designed and built at a time when pedestrian and bicycle concerns were not of any consequence to highway planners and designers. The following particular observations were made:

A. Pedestrian Connectivity

The purpose of this section is to provide for safe and convenient pedestrian circulation consistent with ‘complete streets’ and access management standards and the function of affected east-west and north-south streets in the study area. The aim is to confirm that reasonably direct routes are available for pedestrians of all ages and abilities to travel and circulate in areas where pedestrian travel is likely to occur. Within the study area and citywide, sidewalks are the predominant means of circulation and connectivity for pedestrians throughout. In certain sections along Forbes Avenue between Seneca Street and Craft Avenue, in the vicinity of the Boulevard of the Allies/Birmingham Bridge underpass, there are no safe areas to walk between Uptown and Oakland. The underpass is treacherous and not friendly to either bikes or pedestrians due to the lack sidewalks, sustainable amenities, including greenery, pedestrian-scale lighting, and trees.

Throughout the study area, many intersections do not currently have the requisite number of curb ramps for persons in wheelchairs or with strollers to safely and easily cross the street. ADA standards require two (2) directional ramps that connect sidewalks on each side of the street. Our field observations demonstrated that this is not the case, and that in many cases, only one curb ramp is provided on the major east west and north-south streets.



Sidewalk on Forbes Avenue, Uptown

Also absent at many intersections along the major corridors are pedestrian signal heads. Pedestrian signal heads are useful tools at signalized intersections that provide guidance to pedestrians when to safely cross the street. Intersections with countdown pedestrian signal heads are the most useful but they are very few of them at signalized intersections in the study area.

Pedestrian travel and circulation are currently achieved through sidewalks, steps, and bridges throughout the study area. The quality, safety, and enjoyment of pedestrian connections vary, and it depends on the neighborhood, desired destinations, land use intensity, and upkeep of abutting properties. The interface of transit stops and pedestrian sidewalks/crosswalks at major intersections are of paramount importance as most pedestrian/vehicle / bicycle conflicts occur at intersections with inadequate pavement markings, streetlights, signage, or traffic signals that do not accommodate pedestrians. In several field views of the study area, sidewalks were generally in good condition the closer you got to a desired destination or place whether in a retail or institutional district.



Sidewalk, Hill District

In residential areas, lack of maintenance and repair is evident at some locations as shown in these photos. The sidewalks in the heart of Central Oakland along Forbes Avenue are usually crowded to capacity with pedestrian of all ages, especially at the intersections. The recently completed curb bulb-outs have helped and this needs to be replicated on Fifth Avenue, at critical intersections, and on Wylie, Bedford, and Webster between Erin Street and Herron Avenue and the Hill District. As shown in the photos, these surface conditions were evident in spot locations along sections of Fifth and Forbes Avenues between Gist Street and the Birmingham Bridge in Uptown.

At many other locations during our field views, sections of sidewalks were in disrepair or missing completely; household items and overgrowth were observed at many locations. These conditions were documented particularly in the Hill District on sections of Centre Avenue, Wylie Avenue, Bedford Avenue, and Webster Avenue between Somers Street and Herron Avenue; and in the Uptown on Fifth Avenue and Forbes Avenue between Dinwiddie Street and Craft Avenue.

Adding to unsafe pedestrian conditions are businesses that allow parking of vehicles on part of entire sidewalks. This happens frequently in Uptown along Fifth Avenue, approaching the Birmingham Bridge from Oakland, and on sections of Forbes Avenue. Code enforcement is critical to avoid pedestrians or those in wheelchairs from having to enter onto the street to circumvent cars parked on sidewalks.

B. Transit connectivity

On September 22, 2010, members of L.R. Kimball and the Port Authority of Allegheny County (PAAC) conducted a field view of the project area and discussed several issues related to transit routes. Fred Mergner, Supervisor of Service Planning, Ridership, and David Wohlwill, AICP, Manager of Extended Planning of the PAAC represented the PAAC. They explained that although several changes took

place on September 5, 2010 as a direct result of the Transit Development Plan (TDP), there are still many recommendations from the TDP consultant that have not been implemented.

Some of the major issues discussed in this field view related to stop consolidation, shelter additions, route alterations, and the addition of dedicated bus lanes throughout all three neighborhoods. Most of the bus routes that use east-west roadways through the Hill District and Uptown also continue through Oakland, therefore any recommended improvements may benefit all three neighborhoods in the study area. East-west destinations appear to be currently well served by public transit. The major east-west roadways carry the majority of bus routes and ridership within the study area. The Fifth and Forbes Avenue corridor alone carries a total of 27 routes on any given weekday. Eight (8) of those routes do not run on the weekend including the 42, 67E, 67J, 69, 74B, P3, O4, and the W. **Tables 1, 1a, and 1b** of this report depict bus routes and ridership through the major corridors in the study area: The tables represent the total number of trips and one-way ridership on routes that stop and pass through the corridor: The tables also reflect current changes in the bus schedule that took effect in September 2010.

After speaking with the PAAC, and realizing their interest for Bus Rapid Transit (BRT) systems, L.R. Kimball has studied the possibility of adding more exclusive bus lanes through the study neighborhoods. Taking away travel lanes through some of the study neighborhoods may not be the best option or even feasible without additional traffic analysis, but L.R. Kimball would like to suggest combination bus and right-turn only lanes in order to provide support for this system.



Bus Rapid Transit (BRT) Bus

BRT systems have worked well in several other cities across the country, including major metropolises such as Los Angeles and Boston. They provide many different options for specific routes, including, greater frequency in service, simple route structure, limited stops, exclusive bus lanes where possible, priority at traffic signals, special buses, off-vehicle payment, and real-time passenger information at stops, and shelters at every stop. By tying all of these ideas together, these buses are able to increase efficiency of the route and shorten trip times, benefiting both the passenger and the service provider.

L.R. Kimball has also reviewed data from the Transit Development Plan (TDP) that is reflected in some of the following recommendations. Ridership, boarding and de-boarding numbers in some areas have shown that some stops can easily be eliminated without affecting a large number of passengers. L.R. Kimball also explored several other transit improvements as discussed earlier in this report. In **Table**

1a, the east-west corridors through the Hill District see a total of three (3) routes on a typical weekday and weekend. The following table represents the total number of trips and one-way ridership of routes that stop and pass through the study area neighborhoods:

HILL DISTRICT BUS TRIPS AND AVERAGE RIDERSHIP

Route	Number of Trips			Average Daily Ridership		
	Week day	Saturday	Sunday	Weekday	Saturday	Sunday
81	72	50	48	2101	966	374
81B	94	78	72	4507	3195	2242
83	72	50	47	2060	1329	743
TOTAL	238	178	167	8667	5489	3358

Table 1a: Note: The Number of Trips are as of September 5, 2010 and the Average Daily Ridership in as of July 2010. The 81 and 83 are estimated because they are new as of September 5, 2010.

Uptown sees a total of ten (10) routes on a typical weekday and nine (9) on the weekend. Most of these routes have limited or no stops in Uptown as they pass through to get to Downtown Pittsburgh or Oakland. The following table represents the total number of trips and one-way ridership of routes that stop and pass through Uptown:

UPTOWN BUS TRIPS AND AVERAGE RIDERSHIP

Route	Number of Trips			Average Daily Ridership		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
61A	104	74	43	4653	1799	1493
61B	104	82	53	4164	2697	1060
61C	106	80	50	5847	3831	2570
61D	106	78	44	3149	2174	1701
67	50	33	22	1759	897	387
69	46	-	-	1246	-	-
71A	194	92	70	8194	3473	2252
71C	102	80	48	3511	1210	843
71D	112	88	46	3928	1964	1148
500	54	42	32	6672	4085	2770
TOTAL	978	649	408	43123	22130	14224

Table 1b: Note: The Number of Trips are as of September 5, 2010 and the Average Daily Ridership in as of July 2010

OAKLAND BUS TRIPS AND AVERAGE RIDERSHIP

Route	Number of Trips			Average Daily Ridership		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
28X	76	76	76	1392	857	1018
42	14	-	-	388	-	-
54C	7	77	50	3831	2055	1366
58	90	48	32	1755	573	208
61A	104	74	43	4653	1799	1493
61B	104	82	53	4164	2697	1060
61C	106	80	50	5847	3831	2570
61D	106	78	44	3149	2174	1701
67	50	33	22	1759	897	387
67E	6	-	-	102	-	-
67J	10	-	-	237	-	-
69	46	-	-	1246	-	-
71A	194	92	70	8194	3473	2252
71C	102	80	48	3511	1210	843
71D	112	88	46	3928	1964	1148
74B	20	-	-	423	-	-
75	100	64	48	1202	589	374
81	72	50	48	2101	966	374
81B	94	78	72	4507	3195	2242
83	72	50	47	2060	1329	743
84B	220	156	65	38	30	24
93	64	64	-	<i>New</i>	<i>New</i>	-
500	54	42	32	6672	4085	2770
P3	161	-	-	2670	-	-
G2	106	34	34	2456	759	896
O4	9	-	-	280	-	-
W	5	-	-	113	-	-
TOTAL	2104	1346	880	66677	32482	21468

Table 1: Note: The Number of TRIPS is as of September 5, 2010 and the Average Daily Ridership is as of July 2010. The 81 and 83 are estimated because they are new as of September 5, 2010. Data for route 93 is not yet available.

Based on these observations, L.R. Kimball recommends the following transit improvements for each of the study neighborhoods:

- Create an inbound bus and right-turn only lane on Fifth Avenue throughout Oakland and connect to Uptown. This can be achieved by eliminating parking on the right side of Fifth Avenue while leaving space for a bicycle lane (see Bicycle Connectivity). If these lanes are added, along with stop consolidation (discussed below), it is beneficial to add all stops to the far side of intersections

in order to allow right turning vehicles to make their movement while passengers are picked up. The same could also be done on Forbes Avenue, but L.R. Kimball feels that outbound buses are currently sufficiently served by the contra-flow bus lane on Fifth Avenue.



Port Authority buses using contra-flow bus lane in Oakland on Fifth Avenue

- Consolidate stops throughout Oakland, especially on Forbes Avenue and Fifth Avenue. This will help keep traffic moving and decrease the number of accidents buses are involved in because of excessive stop-and-go movements. This will need to be coordinated with the PAAC, who are currently interested in stop consolidation. Some bus routes along Forbes Avenue can stop as many as nine (9) times in Oakland; this could be consolidated to as little as four (4) or five (5) stops. Similar situations occur along Fifth Avenue in both directions, but too much stopping only becomes a problem when buses need to file back into moving traffic on Fifth Avenue heading towards downtown. Further analysis of data provided by the PAAC and data from the TDP would show which stops are the most highly used and which can be eliminated due to low use.

- Upon further study, shelters should be added where appropriate. Oakland is one of the areas of Pittsburgh with the highest ridership; all major stops along Fifth Avenue and Forbes Avenue should have shelters in order to keep waiting passengers away from the elements and clear of pedestrians trying to use the sidewalk.



Port Authority bus serving the Hill District

- The Hill District also sees the need for some transit improvements. Stop consolidation is needed throughout the Hill District, especially on Centre Avenue as bus stop signs can occur on a block-to-block basis. Further analysis of data provided by the PAAC and data from the TDP would show which stops are the most highly used and which can be eliminated due to low use.
- Some areas of high residency and major attractions could use shelters. Elmore Square is a high-density living area with many residents using the bus as their primary means of transportation; a shelter for inbound and outbound passengers would be beneficial.

- A shelter could also be used near the Family Dollar as this is the main retail district of the Hill District, and bus usage in this area is high. Currently an outbound shelter is available, but this location is in need of an inbound shelter.
- A bus shelter could also be used outside of the new library at the corner of Kirkpatrick Street and Centre Avenue. The stop is currently on the opposite side of the road and should be relocated to the corner near the library.
- Consolidate stops throughout Uptown, especially on Forbes Avenue and Fifth Avenue. This will help keep traffic moving and decrease the number of accidents that buses are involved in because of excessive stop and go movements. This will need to be coordinated with the PAAC, who are currently interested in stop consolidation. Some bus routes along Forbes Avenue and Fifth Avenue can stop as many as eleven (11) times in Uptown; this could be consolidated to as little as four (4) or five (5) stops. The TDP has shown that a particularly high number of the stops throughout Uptown have little or no boarding or de-boarding passengers, furthering the cause for stop consolidation. Further analysis of data provided by the PAAC and data from the TDP would show which stops are the most highly used and which can be eliminated due to low use.
- Bus shelters are scarce throughout Uptown. Although shelters may not be practical towards South Oakland, the majority of the riders boarding in Uptown are from Duquesne University, which sees two shelters along Forbes Avenue. Similarly, the majority of passengers that are de-boarding are doing so near Duquesne University in front of the new Consol Energy Center. The number of passengers coming to this area of town is sure to increase with the arrival of new attractions in this area.



Port Authority Bus Shelter

C. Bike Connectivity

Bicycle travel has risen across the country and our region recently, creating the need for bicycle lanes, bicycle way-finding signs, bicycle racks, and storage areas in buildings, and even special signal timings for bicycles. This helps bicycles and motorists become more aware of each other in order to avoid accidents. Investing in bicycle facility improvements can be fairly inexpensive considering all that may be needed is some restriping of pavement markings and the addition of street signs. Pittsburgh is ranked 11th nationwide in the amount of people that bicycle to work, but is ranked far lower when it comes to bicycle infrastructure. In order for Pittsburgh to become a more bicycle friendly city, it is necessary that we invest in improving our city's bicycle infrastructure.

Many cities around the country have already begun to invest millions of dollars in their city's bicycle infrastructure, including Chicago, Portland, Seattle, and Washington D.C., to name a few. These cities have been able to do this by eliminating on street parking, reducing the number of travel lanes, reducing the size of travel lanes, or restriping existing lanes. Gore areas and medians can take up a lot of usable space for bicycle lanes.

Through observation and meetings with Bike PGH, L.R. Kimball believes that at least one inbound and outbound bicycle lane connecting Downtown Pittsburgh to Oakland would be beneficial in the long run. When looking at some of the current lane configurations and space along Forbes Avenue and Fifth Avenue, this may be easier in some areas rather than others. L.R. Kimball also believes that Centre Avenue should be fitted with painted "sharrows" on the road in order to provide another route to connect Downtown Pittsburgh to North Oakland. L.R. Kimball is in the beginning stages of preparing the City of Pittsburgh's Bicycle Master Plan. L.R. Kimball has teamed with Toole Design, a company that has worked on various bicycle master plans throughout the country including Washington D.C., Boston, and Seattle. Through a preliminary web survey conducted by Toole Design, L.R. Kimball has learned that the Forbes Avenue and Fifth Avenue corridors through Uptown and Oakland are some of the areas that bicyclists around Pittsburgh feel unsafe. This is likely because there are no bicycle signs, pavement markings, or any other kind of bicycle safety measures in place

The City of Pittsburgh Bike Route Map and the Bike Route Map published by Bike PGH identify several roadways in the study area as designated bike routes. Though many of these are good routes, our field observations demonstrated that most of the routes are either not signed or very minimally signed as bike routes. Sections of Fifth Avenue and Forbes Avenue are currently not suitable for safe bicycling due to improper signage, lack of signage, road hazards, on street parking, traffic speeds, and lack of way finding or destination signage at critical junctions. On Fifth Avenue, particular problem areas include sections between Seneca Street and Craft Avenue. Fifth Avenue operates as one-way inbound between Bellefield Avenue in Oakland, westbound through the study area in Uptown. A contra-flow exclusive bus lane operates eastbound between Seneca Street in the Uptown and Bellefield in Oakland. Bike traffic is not permitted in the bus lane, so bicyclists from the South Side that travel on the Birmingham Bridge can either illegally use the bus lane or ride against traffic in the opposite eastbound lane to Oakland destinations. L.R. Kimball does not recommend this movement even if it occurs presently. The intersection of Fifth Avenue and Kirkpatrick/Birmingham Bridge is a prime candidate for an upgrade to accommodate pedestrians and cyclists because of the existing antiquated traffic signal, hazardous approach grades, and lack of pedestrian accommodations.

Other issues observed during field views include lack of destination or distance signage, poor signage design; inadequate spacing of signs, routes that need improvement, hazardous routes, routes needing safety signs, routes where way-finding signs are needed, useful trail access points, routes where contra- flow accommodations might be needed. These issues were confirmed by public comments as

part the ongoing City of Pittsburgh Bike Route and Signage Strategic Plan. The following observations and recommendations are made for major east west corridors in the study area.

L.R. Kimball has looked at Forbes Avenue and Fifth Avenue through Uptown and Oakland. In order to add a bicycle lane, there are extensive traffic and parking issues that would first need to be evaluated, but L.R. Kimball has come up with a suggested route and lane configuration that may be possible. Please note, all lane widths are estimates and actual widths may vary. All lane configurations read from left to right in the direction of travel.

V. EAST - WEST CORRIDORS

A. Forbes Avenue Outbound

Background:

The main connection from Downtown Pittsburgh to Oakland for bicyclists; Forbes Avenue, does not provide any bicycle lanes, signs, or pavement markings to make drivers aware of the fact that bicyclists are on the road. Lanes are very wide and there is parking on both sides, creating conditions where drivers tend to speed, making it unsafe for bicyclists.

Problem:

No bicycle route signage was seen anywhere along Forbes Avenue in Uptown. There's a difficult, if not impossible, transition for bicyclists under the Birmingham Bridge where Forbes Avenue and the Parkway Ramp meet. The roadway pavement is undulated between

Jumonville and Gist on the north side of Fifth Avenue; this presents dangerous riding and walking conditions for bicyclists and is hazardous for pedestrians.

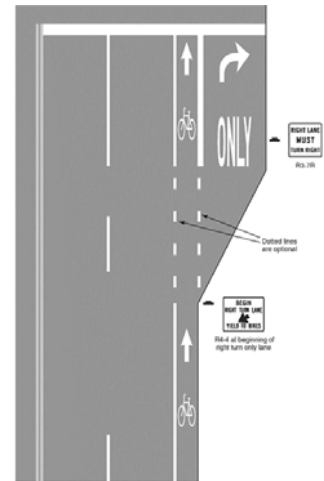


“Sharrows” on Penn Avenue in Lawrenceville

Parking on both sides of the street also makes it difficult for safe bicycle travel on Forbes Avenue. Going through the Oakland neighborhood, Forbes Avenue does not provide any bicycle lanes, signs, or pavement markings. Bicyclists complain about the excessive speed that drivers use on this main corridor.

Recommendations:

- Install bicycle route signage and pavement markings throughout Uptown, following the sign protocol being developed for the City of Pittsburgh Bicycle Route and Signage Plan.
- Install bicycle racks at appropriate locations throughout the corridor in Uptown and Oakland, at major bus stops, institutional buildings, and retail storefronts.
- L.R. Kimball recommends a detailed traffic study to determine the feasibility of installing curb extensions at major intersections in the Uptown between Moultrie Street and Washington Place.



Bike lane on left hand side of right hand turn lane

- There's a dire need for more police enforcement for cars that park freely on sidewalks on Fifth and Forbes in Uptown, forcing pedestrians, those in wheelchairs to go into the street.)
- Under the Birmingham Bridge, east of Moultrie Street, evaluate the feasibility of a bicycle lane that would be separated from the travel lane, to a point where Forbes Avenue merges with the Boulevard of the Allies and the Parkway Ramp.
- If the lane on the right side of the median could be reopened to traffic then bicycles could use the left-hand lane as their own. This whole area could be further studied for sustainable improvements to attract more pedestrians if a way could be found to connect to Craft Avenue.
- Eliminate parking on the northern (left) side of Forbes Avenue between Stevenson and Moultrie and add a bicycle lane in the left-hand lane. This could work because of the street's one-way configuration or leave the existing configuration and add "sharrows" in the right-hand travel lane.
- One potential solution along Forbes Avenue through Oakland could be that the right-hand lane becomes an exclusive right-turn only lane, with a bike lane adjacent to the right-hand turn lane. The low volume of right-hand turns will create less traffic for bicyclists. This recommendation should be reviewed for future study.
- Another potential solution would be to add "sharrows", which designates the travel lane as a bicycle lane as well as a lane for vehicular traffic. This helps make drivers aware of potential bicyclists and encourages them to share the road. There is a similar scenario

along Penn Avenue in the Strip District where the city has recently added “sharrows” on the pavement from Lawrenceville to Downtown Pittsburgh.

Disadvantages:

Possible opposition from some property owners, motorists, and visitors can be expected by the loss of on- street parking. Creating a bicycle lane under the Birmingham Bridge and a vertical connection to the Boulevard of the Allies is a costly proposition under hard economic times, but it can be done with the right champion (BikePGH!) working with local Pittsburgh officials.

Also, too much pedestrian traffic in some sections of Forbes Avenue can exacerbate the already bad pedestrian, bus, vehicle, and bicycle conflicts along Forbes Avenue between Washington Place and Moultrie Street.

1. Shingiss Street to Stevenson Street:

Cart way Width: 34’

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane

Suggested Configuration: 7’ Parking Lane, 5’ Bicycle Lane, 11’ Travel Lane, 11’ Travel Lane

Connectivity Explanation: This section of Uptown tends to see faster moving traffic even though the posted speed limit is 25 mph. L.R. Kimball feels that a bicycle lane through this section would encourage drivers to slow down and create a safer environment for bicyclists. An alternate solution could be to leave the current lane configuration and paint “sharrows” on the road similar to those on Penn Avenue in Lawrenceville.

2. Stevenson Street to Brady Street:

Cartway Width: 36’

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 7’ Parking Lane, 5’ Bicycle Lane, 12’ Travel Lane, 12’ Travel Lane

Connectivity Explanation: This section of Uptown tends to see faster moving traffic even though the posted speed limit is 25 mph. L.R. Kimball feels that a bicycle lane through this section would encourage drivers to slow down and create a safer environment for bicyclists. An alternate solution could be to leave the current lane configuration and paint “sharrows” on the road similar to those on Penn Avenue in Lawrenceville.

3. Birmingham Bridge to Ophelia Street:

Cartway Width: 17'

Current Lane Configuration: 17' Travel Lane

Suggested Configuration: 5' Bicycle Lane, 12' Travel Lane

Connectivity Explanation: The purpose of having the bicycle lane on the left side is to keep bicyclists away from high-speed traffic that is merging from the interstate ahead. Bicyclists coming from the Birmingham bridge bicycle lane would need to safely maneuver from a separate phase of the signal to join with the bicycle lane on the opposite side of the road. If the unused right-hand lane that was originally used for traffic is upgraded, the left-hand lane could be the bicycle lane which would then be physically separated by the existing median.

4. Ophelia Street to Craft Avenue:

Cartway Width: 40'

Current Lane Configuration: Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 5' Bicycle Lane, 11' Travel Lane, 12' Travel Lane, 12' Travel Lane

Connectivity Explanation: This section of Forbes Avenue tends to see high-speed traffic in the two right-most lanes because they have just merged from the interstate. L.R. Kimball feels that it would be a safer alternative to keep the bicycle lane on the left side through this section and through the Forbes Avenue business district because there is also parking on the left side further down Forbes Avenue in the business district.

5. Craft Avenue to Widening past Bouquet Street:

Cartway Width: 40'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 7' Parking Lane, 5' Bicycle Lane, 10.5' Travel Lane, 10.5' Travel Lane, 7' Parking/Loading Lane

Alternate Configuration: 7' Parking Lane, 4.5' Bicycle Lane, 9.5' Travel Lane, 9.5' Travel Lane, 9.5' Travel Lane

Connectivity Explanation: This section of Oakland will be the most difficult to add a bicycle lane, without the loss of a travel lane. The standard minimum lane width is 10 feet and the minimum bicycle lane width is 5 feet. By decreasing each of these by a half of a foot, a bicycle lane may be

possible through this busy district. The safer option is to eliminate a travel lane and add back a parking/loading lane on the right side of Forbes Avenue. In addition, L.R. Kimball observed many different traffic flow problems in the right-most lane through this section including parked trucks and unsafe weaving.

6. Widening past Bouquet Street to Bigelow Boulevard:

Cartway Width: 48'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 7' Parking Lane, 5' Bicycle Lane, 12' Travel Lane, 12' Travel Lane, 12' Travel Lane

Connectivity Explanation: Once bicyclists reach Bigelow Boulevard they will meet the bicycle lane from Bigelow Boulevard. Since the traffic coming from Bigelow Boulevard and Schenley Drive cannot turn onto Forbes Avenue in the direction the bicyclists are coming from, the bicyclists from the left side of Forbes Avenue and the bicyclists from Bigelow Boulevard can safely cross over to Schenley Drive while traffic is moving from Bigelow Boulevard. Adequate signage and perhaps a separate signal phase may be useful to bicyclists at this intersection.

7. Schenley Drive to Schenley Drive Extension:

Cartway Width: 56'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 7' Parking Lane, 12' Travel Lane, 12' Travel Lane, 12' Travel Lane, 5' Bicycle Lane, 8' Parking Lane

Connectivity Explanation: This section of Forbes Avenue has a very wide right lane that could be partially used for a bicycle lane without changing the current configuration.

8. Schenley Drive Extension to South Dithridge Street:

Cartway Width: 56'

Current Lane Configuration: Travel Lane, Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 12' Travel Lane, 13' Travel Lane, 13' Travel Lane, 13' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: This section of Forbes Avenue has a very wide right lane where no parking is allowed, and buses pick up people from of the Carnegie Museum and Library. This lane is approximately 22 feet wide and a bicycle lane could be added without changing the current configuration.

9. Bellefield Avenue to Schenley Drive Extension at Bigelow Boulevard

Problem:

Cyclists travelling west on Forbes Avenue between South Craig Street and Bigelow Boulevard or Schenley Drive tend to use the northern sidewalk along Forbes Avenue to connect to major destinations in this area, including Carnegie Library and Museum, Pitt Quadrangle, Hillman Library, and Schenley Park. Since Forbes Avenue is a one-way street eastbound in the opposite direction, cyclists do have a need to travel from Bellefield Avenue or Craig Street to Bigelow Boulevard or Schenley Drive Extension to get to destinations south of Forbes Avenue.

Background:

This issue is not new. The City looked into the addition of a contra-flow bicycle lane on Forbes Avenue between Bellefield Avenue and Schenley Drive Extension in the 1980s, but concluded without any further study, that it was not feasible due to safety concerns. Vehicular traffic is heavy throughout the day but particularly during the midday to afternoon peak hours with students, bicycles, buses, cars, and other pedestrians converging on Forbes Avenue at Bigelow Boulevard and Schenley Drive Extension. Bellefield Avenue is a one-way street northbound between Forbes and Fifth and is not suited for bicycle traffic.



Example of contra-flow bicycle lane

Recommendations:

- Kimball recommends that a study be conducted to evaluate the pros and cons of installing a contra-flow bicycle lane on Forbes Avenue from Craig Street to Bigelow Boulevard and Schenley Drive Extension in order to safely connect bicyclists to nearby destinations.
- If the contra-flow lane is going to be installed, in order to create a safe and noticeable separator between oncoming vehicular traffic, Kimball recommends that the City of Pittsburgh consider striping a solid double-yellow line between vehicular traffic and the bicycle lane.

- This also creates the need for a separate signal phase at the intersection of Forbes Avenue and Bigelow Boulevard, Schenley Drive Extension, and Bellefield Avenue to allow bicycles to safely navigate the intersections.

Disadvantages:

A traffic impact study would be required to carry this recommendation forward and a successful outcome cannot be guaranteed until after a sixty-day trial period.

10. South Dithridge Street to Craig Street:

Cartway Width: 48'

Current Lane Configuration: Travel Lane, Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 10' Travel Lane, 11' Travel Lane, 11' Travel Lane, 11' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: This section of Forbes Avenue is fairly narrow for four lanes of traffic currently, but a bicycle lane can be achieved without going below a 10-foot lane width. After Craig Street, where Oakland's Boundary Street is located, the road becomes only 40 feet wide and has four 10-foot lanes. In this section, one solution to continue the bicycle route up to Carnegie Mellon University could be the use of "sharrows".

B. Fifth Avenue Inbound

The main westbound connection from Oakland to Downtown Pittsburgh for bicyclists, Fifth Avenue does not provide any bicycle lanes, signs, or adequate pavement markings to make drivers aware of the fact that bicyclists are on the road. Between Bellfield and Bouquet, the cart way consists of one parking lane on the north side of the street, four westbound travel lanes, and an eastbound contra flow bus lane. Fifth Avenue in the heart of the university and medical districts is heavily populated during the day by students, visitors, cars, bicyclists, and other pedestrians creating conditions of conflict for all users.

Problem:

Too much on street parking on Fifth Avenue inhibits safe bicycle travel. The intersection of the Birmingham Bridge with Fifth Avenue and Kirkpatrick Street is of particular concern due to the lack of proper signage, poor infrastructure, including inadequate traffic signal equipment, road surface conditions, and approach grades. The Birmingham Bridge is a signed bicycle route, but it is unsafe at both the northern and southern termini due to improper transition into the travel lane at East Carson Street at the southern terminus, and onto Fifth Avenue at the northern terminus. Most times bicyclists

heading to Oakland use the PAAC bus lane from the Birmingham Bridge to South Oakland, as there is no alternative provided. This has created tension between bus drivers and bicyclists in the past.

Recommendation:

- One possible solution for Fifth Avenue throughout Uptown could be to eliminate parking on the north curb lane and add a bicycle lane.
- Another possible solution could be to leave the existing configuration and add “sharrows” in the right travel lane.
- Between Robinson Street and the Birmingham Bridge and Kirkpatrick Street intersection, eliminate parking in the right-hand lane and install a bicycle lane.
- Or maintain the existing condition but install parking meters in the inbound right-hand and add “sharrows” in the right travel lane.
- At the intersection of Fifth Avenue and the Birmingham Bridge and Kirkpatrick Street, design and install a new traffic signal and controller to accommodate bicycles and pedestrians accordingly.
- Redesign and reconstruct the intersection to eliminate the dangerous approach grades on Kirkpatrick Street and Fifth Avenue.
- Install appropriate bicycle and pedestrian signage and pavement makings at the intersection.

Disadvantages:

- Removal on parking will generate lots of opposition from business owners, especially in the business sectors of Fifth Avenue.
- Redesign of the intersection and installation of new signals will be costly.

1. Neville Stret to South Craig Street:

Cartway Width: 56’

Current Lane Configuration: Travel Lane, Travel Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 11’ Travel Lane, 11’ Travel Lane, 11’ Travel Lane, 11’ Travel Lane, 5’ Bicycle Lane, 7’ Parking Lane

Connectivity Explanation: Travel lanes throughout this section of Fifth Avenue are wide enough that they could be reduced to fit a bicycle lane.

2. Craig Street to Bellefield Avenue:

Cartway Width: 56'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 7' Parking Lane, 11' Travel Lane, 11' Travel Lane, 11' Travel Lane, 11' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: Travel lanes throughout this section of Fifth Avenue are wide enough that they could be reduced to fit a bicycle lane. There are two on-street parking spaces that will need to be eliminated on the corner of Fifth Avenue and Dithridge Street.

3. Bellefield Avenue to Darragh Street:

Cartway Width: 60' and 52' where curb extensions have been placed.

Current Lane Configuration: Contra-flow Bus Lane, Travel Lane, Travel Lane, Travel Lane, Travel Lane, Parking Lane



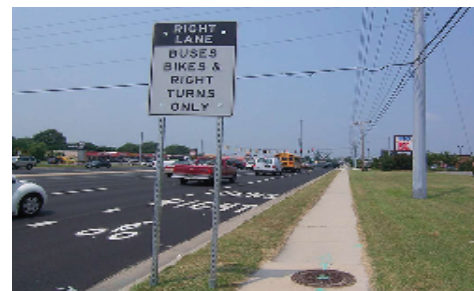
Bicycle lane against the right-hand curb

Suggested Configuration: 10' Contra-flow Bus Lane, 10' Travel Lane, 10' Travel Lane, 10' Travel Lane, 15' Bus/Right Turn Only Lane, 5' Bicycle Lane

Alternate Configuration 1: 10' Contra-flow Bus Lane, 10' Travel Lane, 10' Travel Lane, 10' Travel Lane, 5' Bicycle Lane, 15' Bus/Right Turn Only Lane

Alternate Configuration 2: 10' Contra-flow Bus Lane, 11' Travel Lane, 11' Travel Lane, 11' Travel Lane, 17' Bus/Bicycle/ Right Turn Only Lane

Connectivity Explanation: In the suggested configuration, the bicycle lane would have to be combined with the bus lane at the curb extensions at the intersections of North Bouquet Street and



Shared right-hand turn lane and bus lane

Meyran Avenue.

The alternate configurations involve converting the right-most lane and the parking lane into a lane that can only be utilized for buses, bicycles, and vehicular traffic making right turns. With the limited number of right-hand turns through the corridor, it could be a safer alternative than adding sharrows in this lane. Kimball has witnessed that the parking on the right side causes buses to compete with traffic in order to get back into the travel lanes. The curb extensions that have been installed on Fifth Avenue at the intersections of North Bouquet Street and Meyran Avenue could force buses to travel into the traffic lanes in order to get around them in alternate configurations 1 and 2. The curb extensions extend eight (8) feet into the roadway leaving nine (9) feet for the bus to pass.

4. Darragh Street to Craft Avenue:

Cartway Width: 44'

Current Lane Configuration: Contra-flow Bus Lane, Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 10' Contra-flow Bus Lane, 10' Travel Lane, 10' Travel Lane, 10' Travel Lane, 15' Bus/Right Turn Only Lane, 4' Bicycle Lane

Alternate Configuration 1: Current configuration with “sharrows” in the right-most lane

Connectivity Explanation: A four (4) foot bicycle lane here would be an exception to the general rule of five (5) feet. The reason L.R. Kimball does not suggest a shared lane, as in the previous section of Fifth Avenue, is because the amount of traffic that continues straight in the right-most lane during rush hour warrants this lane to stay as is. The lanes in this section could be reduced to ten (10) feet, making space for a four (4) foot bicycle lane. Another possibility is the use of “sharrows”, but bicyclists are sure to feel unsafe in this scenario.

5. Craft Avenue to Robinson Street:

Cartway Width: 42' to 44'

Current Lane Configuration: Contra-flow Bus Lane, Travel Lane, Travel Lane

Suggested Configuration: 11' Contra-flow Bus Lane, 0'-5' Gore Area, 12' Travel Lane, 12' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: With the removal of some gore areas in this section of Fifth Avenue, a bicycle lane could be added while keeping the current configuration. Some dotted extension lines may be useful through the Craft Avenue intersection to keep drivers aligned.

6. Robinson Street to Moultrie Street:

Cartway Width: 40'

Current Lane Configuration: Contra-flow Bus Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 11' Contra-flow Bus Lane, 12' Travel Lane, 12' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: With the removal the median in the Robinson Street area, it would be possible to have a full bicycle lane on the right side of the road until the parking picks up. The parking on the right side of the road could be eliminated. There are few businesses in this area and they all have their own parking lots and driveways. Most cars that park in this area use this parking to commute into Oakland or Downtown. Once past the Birmingham Bridge intersection, there is a gore area that can be converted into a bicycle lane up to Moultrie Street.

- Design and install a new traffic signal and controller to accommodate bikes and pedestrians at the intersection of the Birmingham Bridge at Fifth / Kirkpatrick.
- Redesign and reconstruct the same intersection to eliminate the dangerous approach grades on Kirkpatrick at Fifth.
- Install appropriate bike and pedestrian signage and pavement makings at the intersection

7. Moultrie Street to Jumonville Street:

Cartway Width: 40'

Current Lane Configuration: Contra-flow Bus Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 11' Contra-flow Bus Lane, 12' Travel Lane, 12' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: Eliminate the small section of parking on the right side of the road to create space for a bicycle lane.

8. Jumonville Street to Washington Place:

Cartway Width: 36'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 7' Parking Lane, 12' Travel Lane, 12' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: By eliminating parking on the right side of the road, it would create a safer environment for bicyclers to travel through Uptown towards Downtown Pittsburgh. Through most of this area there is plenty of off-street parking provided for the limited amount of businesses in the area. The very few residents in Uptown could be given permit parking in this area to ensure they can park near their residency. An alternate solution could be to leave the current lane configuration and paint “sharrows” on the road similar to those on Penn Avenue in Lawrenceville.

C. Centre Avenue

1. Dinwiddie/Devilliers to Kirkpatrick:

Centre Avenue between Dinwiddie/Devilliers Streets and Kirkpatrick Street is at the cusp of becoming the new “Main Street” of the Hill District, replacing Wylie Avenue as the retail, cultural, and entertainment destination in the Hill District. It is home to the Hill House, Kaufmann Auditorium, Carnegie Library (Hill District Branch) and adjacent to the new Consol Energy Center. Centre Avenue is approximately 36 feet wide with intermittent curbside parking on one or both sides throughout. This does not allow enough space for a bicycle lane.

Problem:

Pedestrian volumes are high at the intersection of Centre Avenue and Dinwiddie Street and Devilliers Street in addition to the intersection of Centre Avenue and Kirkpatrick Street, and there’s insufficient infrastructure including signage and pavement markings to accommodate them. The intersection of Centre Avenue and Dinwiddie Street and Devilliers Street is of particular concern due to the misalignment of Devilliers Street and Dinwiddie Street and the approach grades on Devilliers Street. There is a marked midblock crossing for pedestrians to access the existing grocery store but this is located at an unsafe and un-signalized location.

Recommendations:

- Restripe all existing legal pedestrian crosswalks.
- Apply “complete streets” standards to this section of Centre Avenue, including, pedestrian-scale streetlights (including the correct light standards as per the city code), bike racks, street trees, new landscaping (that separates the curb from the sidewalk).
- Investigate the feasibility of installing a bike lane in the curb side lane of Centre Avenue in both inbound and outbound directions. This would require the removal of much needed curbside parking in order to allow a space for the bike lane.

- An alternative is to leave the current configuration and add “sharrows” along Centre Avenue throughout the Hill District.
- In the medium term, the City should design and install a new traffic signal at the intersection of Centre Avenue at Devilliers Street and Dinwiddie Street to safely accommodate pedestrians and bicyclists, including new controllers and poles.
- This intersection is misaligned on the Dinwiddie and Devilliers approaches and that creates sight distance problems, especially for pedestrians. A long-term project could be to totally design and reconstruction this intersection to improve safety and pedestrian circulation especially as this is so close to the proposed Shop 'n Save supermarket.
- This intersection of Centre and Kirkpatrick can also use an upgrade, including pedestrian countdown signals and crosswalks to improve pedestrian crossings
- Investigate the feasibility of designing and installing bulb-outs (curb extensions) and raised crosswalks at all approaches to the intersection of Centre and Kirkpatrick and at Centre and Dinwiddie/Devilliers to provide shorter crosswalks for pedestrians and larger waiting areas for transit patrons. As a variation on standard corner treatments, curb extensions create additional pedestrian space in place of vehicular surface by shortening the distance that a pedestrian must travel to cross a street. That way pedestrian will feel safer in these expanded pedestrian zones. They also increase the sight distance between motorists and pedestrians crossing the street, and have the added benefit of creating additional pedestrian space that can be used for amenities, bus patron shelters, and landscape treatments.
- Investigate the feasibility of a raised and signalized mid-block pedestrian crossing signal between the Hill House and the new grocery store and supermarket. This area also has the potential for a curb extension as field observations demonstrate that it highly used by pedestrians to access the shops across the street from the Hill House. And since the proposed grocery store is going to be constructed nearby, this is a great opportunity to calm traffic at this Centre Avenue location.
- For new developments, pedestrian access through parking lots should generally be provided through access ways. Pedestrian access between new development sites to transit stations/stops and building entrances along Centre Avenue should be designed so as not to conflict with automobile traffic and the walkways should connect building entrances to Centre Avenue.

- Sections of sidewalk between Kirkpatrick and University Drive/Iowa Street should be cleared of debris and overgrowth, or surfaces repaired to allow pedestrians to travel freely and safely between destinations.
- With respect to transit, the bus stop by the new library needs to be relocated from in front of the library to further down Centre Avenue, across from where the site of the proposed YMCA so the stop can service both destinations.
- A stop could be used in front of the Family Dollar to service its customers, as opposed to a current stop down the street in front of the New Grenada Theatre.

Disadvantages

- Cost of infrastructure improvements may preclude any immediate action from local government officials.
- Removal of any on street parking on Centre between Dinwiddie/Devilliers and Kirkpatrick would be problematic. Opposition from businesses and residents should be expected.
- A multimodal transportation study is recommended to ascertain that these improvements can be made without undue negative impacts on the overall transportation network.

2. Kirkpatrick to Bigelow Boulevard:

Cartway Width: 36'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: Current, but add “sharrows”
Sections of sidewalk and curbs need repairs and cleared of debris and overgrowth.

Connectivity Explanation: Centre Avenue is unable to accommodate full bicycle lanes because of its two-way travel and parking on both sides. Eliminating parking is not a viable option through this corridor because of the business district in the Middle Hill and the residents along Centre Avenue. L.R. Kimball believes that “sharrows” and proper signage in both directions on Centre Avenue would help make it more bicycle-friendly.

D. Wylie Avenue

Background:

Wylie Avenue a mostly residential street and is approximately 36 feet wide with curbside parking on one or both sides throughout its length between Crawford Street and Herron Avenue. This does not allow enough space to add a bicycle lane in the current configuration.

Problem:

Wylie Avenue is currently not signed as a bike route and parking on both sides of the street, combined with its steep topography, takes away the option to add a bicycle lane.

Recommendation:

- One potential solution would be to eliminate parking on one side of the street in order to allow space for a bicycle lane. On-street parking along Wylie Avenue is not widely used, creating the possibility of adding a bicycle lane without disrupting residents that need to park along Wylie Avenue.
- A second solution would be to leave the current configuration in place and add “sharrows” along Wylie Avenue throughout, between Crawford Street and Herron Avenue.
- Sections of sidewalk between Kirkpatrick and Herron Avenue should be cleared of debris and overgrowth, or repaired to allow pedestrian to travel freely and safely between destinations.
- Once the Mellon Arena is demolished and a new redevelopment plan is prepared for the Lower Hill neighborhood, stakeholders should advocate for a multimodal transportation plan that connects the Hill to the central business and includes pedestrian, bike, and transit amenities.
- Ample pedestrian and bicycle facilities should be provided in the master plan, including bike racks and storage areas, and parks and playgrounds.

E. Webster Avenue

Background:

Webster Avenue is approximately 36 feet wide, which doesn’t allow enough space to add a bicycle lane in the current configuration. In addition to limited space, Webster Avenue is a very steep road that is not ideal for bicyclists to travel.

Problem:

Roadway width, on-street parking, and steep grades are hindrances to safe bicycle travel on Webster Avenue, especially for the novice and recreational bicyclist.

Recommendations:

- L.R. Kimball does not recommend adding any bicycle facilities along Bedford Avenue. If necessary, “sharrows” could be added on Webster Avenue to accommodate bicyclists.
- Sections of sidewalk between Kirkpatrick and Herron Avenue should be cleared of debris and overgrowth, or repaired to allow pedestrian to travel freely and safely between destinations

F. Bedford Avenue

Background:

Bedford Avenue is a mostly residential street and is approximately 36 feet wide, which doesn't allow enough space to add a bicycle lane in the current configuration. Bedford Avenue, like Webster Avenue, also has a very steep grade, which may not be ideal for novice or recreational bicyclists.

Problem:

Roadway width, on-street parking, unsafe sidewalk conditions in some block faces, and steep grades are hindrances to safe bicycle and pedestrian travel on Bedford Avenue.

Recommendation:

- L.R. Kimball does not recommend adding any bicycle facilities along Bedford Avenue. If necessary, “sharrows” could be added on Webster Avenue to accommodate bicyclists.
- Sections of sidewalk between Kirkpatrick and Herron Avenue should be cleared of debris and overgrowth, or repaired to allow pedestrian to travel freely and safely between destinations

G. Boulevard of the Allies

Background:

This major arterial forms the southern boundary of the study area and provides east-west connections to South Oakland, Schenley Park and the Squirrel Hill neighborhood. From the Uptown neighborhood to South Oakland near Ophelia Street, sidewalks are not provided and the roadway is a very inhospitable environment for both pedestrians and bicyclists. However, from McDevitt Place to Schenley Park, there is a great opportunity to transform this roadway into a grand multimodal boulevard in the true sense of the word, including sustainable and ‘complete street’ elements, including opportunities for enhanced pedestrian and bike amenities throughout this section.

Recommendation:

- L.R. Kimball supports OPDC's intent to conduct a multimodal transportation and urban design study of this corridor as soon as funds become available.

H. Schenley Drive

Background:

Schenley Drive in Schenley Park is a scenic roadway designed for use by all modes. The road has a wide shoulder on both sides that bicyclists and pedestrians currently use together to try and stay away from traffic traveling through Schenley Park. Schenley Drive throughout Schenley Park has a speed limit of 25 mph.



Schenley Drive in Schenley Park

Problem:

There are unsafe transfer points at the three-way intersection of Panther Hollow Road, Frank Curto Drive, and Schenley Drive, where bicyclists and pedestrians struggle to safely navigate through the intersection. Phipps Conservatory is right next door to this unusual convergence of vehicles, pedestrians, and bicycles.

Recommendations:

- Because of the low-posted speed limit and urban setting, a shoulder on either side on Schenley drive does not appear to be warranted. Therefore, Kimball recommends that the uphill shoulder area be converted into a curbed sidewalk in order to accommodate pedestrians.
- On the opposite side, Kimball recommends that this shoulder area be converted into a downhill bicycle lane in order to safely separate vehicular traffic from bicyclists.
- In the area approaching Panther Hollow Drive and Frank Curto Drive, there is parking on both sides, but the roadway width is sufficient in its current state to accommodate a bicycle lane on each side.

I. Schenley Drive / Frank Curto Drive / Panther Hollow Road

Background:

At the three-way intersection of Schenley Drive, Frank Curto Drive, and Panther Hollow Road, there is an unsafe scenario for traffic, bicycles, and pedestrians alike. This intersection is untraditional and would never be permitted to be designed this way by today's standards.



Intersection of Schenley Drive, Frank Curto Drive, Panther Hollow Road

Problem:

In its current configuration, this intersection has inadequate signage to direct motorists, bicycles, and pedestrians in a safe manner. The intersection design is confusing and it is difficult for motorists, bicyclists, and pedestrians to quickly discern who has primacy over the right of way. The light pole in the middle of the intersection is at high risk for causing an accident, especially at nighttime.



Possible one-lane Roundabout schematic

Recommendations:

- Kimball recommends that a traffic study be conducted to determine the feasibility of installing a one-lane roundabout at this vital intersection to accommodate bicycle lanes and sidewalks, in addition to vehicular traffic. Roundabouts have a raised circular areas (similar to medians) placed in the middle of the intersection. Drivers travel in a counter clockwise direction around a circular travel lane. Modern roundabouts are “YIELD” upon entry, meaning that cars in the circle have the right-of-way and cars entering the circle must wait to do so until the path is clear. Roundabouts create a safe environment for pedestrians and bicycles because they tend to slow traffic down, and reduce accidents.
- Include a landscaped area in the design and perhaps some type of public art, such as a statue of a famous and historic figure, strategically placed in the middle on the roundabout.

Disadvantages:

- May be restrictive for larger vehicles but since trucks and buses are not permitted in Schenley Park, this will not be a problem.
- May require additional lighting and signage.
- Initial safety issues as drivers adjust.
- There will be maintenance responsibility for the landscaped area and art form

VI. NORTH – SOUTH CORRIDORS

North-south connectivity is provided by Washington Place / Chatham square, Crawford Street, Dinwiddie/Devilliers, Kirkpatrick Street, Herron Avenue, Bigelow Boulevard, Bellefield Avenue, Craig Street, and Neville Avenue/Boundary Street. These north-south streets carry traffic from the Fifth/Forbes/Centre/ corridors to residential areas and other desired destinations within the northern and southern boundaries of the study area.

Connectivity issues observed in the east west corridors are more prevalent in the north south corridors due to natural barriers that make pedestrian and bicycle travel more challenging. The steep terrain and long distances between residential areas and retail and institutional destinations on Centre Avenue and the Fifth/Forbes corridor are challenging, especially for the elderly, very young, and physically challenged.

The goal of this section is assess reasonably direct routes of travel for pedestrians and bicyclists between destinations, such as between the residential areas of the Hill and Uptown areas to Centre Avenue or the Forbes Fifth retail corridor, or to bus stops along these corridors, or to expected new development locations on Centre Avenue in the Hill District and the Oakland Portal site at Forbes/Fifth/Craft.

Recommendations

- One general recommendation is to investigate the feasibility of a shuttle bus service loop that would link residents and visitors in the three neighborhood study areas to destination points north and south of the major corridors (Fifth, Forbes and Centre) This would include residents of the three neighborhoods, including students, visitors, and others thereby providing convenient access to the proposed new supermarket and YMCA, and the new library on Centre Avenue in the Hill District, UPMC Mercy, Duquesne University in Uptown, and University of Pittsburgh, UPMC hospitals in Oakland, etc.. Such a shuttle bus service is not currently provided by PAT on the scale being recommended.
- A second general recommendation is to commission a study to determine the financial feasibility and need for structured parking in the Uptown and the Hill District as a possible option if removing parking on major east west corridors is to be seriously considered.

A. *Kirkpatrick Street*

Background:

This roadway connects the Hill District to the South Side via the Birmingham Bridge. It is an ideal route for bicycling but is isolated and unsigned. The intersection of Kirkpatrick and Bentley Drive also connects the Middle Hill to the Oak Hill neighborhood in West Oakland. This intersection is un-signalized and is dangerous for traffic, pedestrians, and bicyclists crossing to Oak Hill.

Recommendations:

- Though volumes are low, a study to investigate the installation of a traffic signal, for safety reasons, at this intersection, is recommended. This could be coupled with a planted median to assist traffic channelization and traffic safety.

B. Herron Avenue

Background:

Herron Avenue connects Bigelow Boulevard to Centre Avenue and the upper campus of the University of Pittsburgh. Attempts are being contemplated to revitalize Herron Avenue for mixed-use developments to bring it back to life.

Recommendations:

- Apply “complete streets” standards to Herron Avenue between Centre and Bigelow as part of any future development. These could include new pedestrian scale lighting, bulb-outs at the intersection of Herron with Centre and with Bedford and Webster.
- Riders up Herron Hill have expressed that they are unhappy that the Port Authority route changes no longer include a route close to their homes further east of Herron.
- The current 83-bus route crosses Kirkpatrick Street on Bentley Drive and this could be dangerous with no stop sign if traffic volumes increase.
- The 83 also runs up Bryn Mawr Road, which is cobblestone and has parking on one side. The bus struggles on this route and it would be easier if parking were eliminated.
- The 83 also services on Sundays, and creates problems at the top of Bryn Mawr Road when church services are taking place at Grace Memorial Presbyterian Church, because parishioners and residents park too close to the intersection, inhibiting bus-turning movements.

C. Bellefield Avenue – Craig Street – Bigelow Boulevard

Background:

These three roadways form the nucleus of student activity in the heart of the University of Pittsburgh’s Oakland campus. All three of these streets provide major connections between Fifth Avenue and Forbes Avenue to destinations south of Fifth Avenue and north of Forbes Avenue. However, there are no bicycle lanes, signs, or pavement markings to encourage drivers to pay attention to cyclists and

pedestrians. Efforts have been mounted in the past by the university to request vacation of Bigelow Boulevard between Fifth Avenue and Forbes Avenue to convert it into a pedestrian prescient that would connect the Cathedral of Learning to the Pitt Student Union. It would serve as an extension of the campus' green infrastructure. Neighborhood opposition stalled any progress on moving this effort forward.

Problem:

There are high pedestrian volumes in this area, especially on Bigelow between Fifth Avenue and Forbes Avenue. Vehicular, pedestrian, and bicycle conflicts are common especially at the intersections. The diagonal parking on Bigelow Boulevard adds to the present danger of pedestrian and vehicular conflicts.



Three Rivers bicycle rack on Fifth Avenue in Oakland

Recommendations:

- It has been suggested in previous studies of Oakland that at least two of these streets be closed to vehicular traffic in order to make them “pedestrian malls.”
- Kimball recommends that in addition to the pedestrian malls. that bicycle lanes and bicycle racks for bicycle parking be added in these areas in between Forbes Avenue and Fifth Avenue in order to provide a safer environment for bicyclists.

D. Neville Street / Boundary Street

Background:

Many bicyclists use these roads as a route between Schenley Park, the University of Pittsburgh, and Carnegie Mellon University. The road is very narrow and cars often park along both sides of the road regardless of the no parking signs, making the useable roadway very narrow. There is also a narrow passage under the railroad trestle that only one vehicle can travel through at one time.



Boundary Street

Problem:

Bicyclists as well as pedestrians compete with cars for space on Neville Street, which turns into Boundary Street between Fifth Avenue and Joncaire Street. The roadway width varies, from around 22 feet at its widest point. Cars park illegally on one or both sides of Neville and Boundary Streets throughout the day, thus further restricting the travel space for cars, bicycles, and pedestrians. During field views, we observed cars travelling at excessive speeds, creating unsafe conditions for both bicyclists and pedestrians. There is a railroad crossing for the AVRR, which creates unsafe surface conditions for bicyclists. Also there is a railroad trestle whose supports encroach on the roadway width, forcing motorists to stop or yield to oncoming traffic. It was stated at the kickoff meeting that this trestle is owned by CMU and is scheduled to be demolished in the near future. There is also inadequate bicycle signage and placement. Pedestrian or any type of signage for walkers and joggers is limited.

Recommendations:

- Bike PGH is working on a plan to transform Boundary Street into a “Bicycle Boulevard”. L.R. Kimball recommends a series of traffic calming measures for Boundary Street and Neville Street to slow down vehicle traffic and provide a better environment for bicyclists and pedestrians.
- Post “No Parking” signs along the both Neville and Boundary Streets to remove the illegally parked cars that are there currently.
- Coordinate with the municipal engineer, transportation planner, and local law enforcement to enforce the no parking ban.
- In the short term, more bicycle signage, including share the road signs could be installed. Pedestrian walking and jogging signs could also be installed to inform motorists and bicyclists alike of the presence of pedestrians.
- At the conclusion of the ongoing City of Pittsburgh Bicycle Route and Signage Plan, install the recommended route and signage protocol throughout Neville and Boundary Streets.
- Conduct engineering and transportation studies to evaluate the feasibility of installing a choker or “*Centered Mid-Block Yield Point*” at a strategic location in the road. That way speeding motorists will be forced to slow down or stop to yield the right of way to opposing traffic. This already happens at the railroad trestle and it works very well to slow traffic down
- There is also the potential to widen both Neville Street and Boundary Street to create a shared bicycle and pedestrian path that would be separate from the vehicle travel lane.

Disadvantages:

- Bringing key stakeholders together to agree on a way forward could be problematic without a champion to keep things moving. Bike PGH could lead the way to make this happen.
- Widening of the roadway could be problematic due to right of way issues dealing with the railroad. This would also require a retaining wall in some sections and the costs could be prohibitive.
- The slope of the surrounding land and utility relocations may make this difficult.
- This would require additional right of way that may be currently owned by railroad (AVRR), Carnegie Mellon University, Central Catholic High School, City of Pittsburgh, or some other entity.

E. Bigelow Boulevard

1. Fifth Avenue to Forbes Avenue:

Cartway Width: 60'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Travel Lane, Diagonal Parking Lane

Suggested Configuration: 5' Bicycle Lane, 12' Travel Lane, 12' Travel Lane, 12' Travel Lane, 19' Diagonal Parking Lane

Connectivity Explanation: This short bicycle lane will connect bicyclists from Fifth Avenue to the University of Pittsburgh's Cathedral of Learning and down to Schenley Drive where they can pick up another proposed bicycle lane along Forbes Avenue once they cross the intersection. They will be able to safely navigate the intersection on Bigelow Boulevard's green phase because traffic cannot turn right here.

F. Schenley Drive

1. Forbes Avenue to Schenley Drive:

Cartway Width: 50'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 7' Parking Lane, 5' Bicycle Lane, 13' Travel Lane, 13' Travel Lane, 5' Bicycle Lane, 7' Parking Lane

Connectivity Explanation: This leg of the Schenley Drive bicycle lane can connect bicyclists to the other leg of Schenley Drive on the Hillman Library side of the road. There is already plenty of room here for bicycle lanes without changing the current configuration.

2. Roberto Clemente Drive to Schenley Drive Extension:

Cartway Width: 50'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Travel Lane

Suggested Configuration: 7' Parking Lane, 5' Bicycle Lane, 11' Travel Lane, 11' Travel Lane, 11' Travel Lane, 5' Bicycle Lane

Connectivity Explanation: This leg of the Schenley Drive bicycle lane can be the beginning of a bicycle lane that could continue on Schenley Drive all the way through Schenley Park until it connects to the existing bicycle lane at Schenley Park's north entrance in Squirrel Hill. Bicycle traffic coming from Schenley Park could make the right onto the bicycle lane of the section of Schenley Drive that connects up to Forbes Avenue.

3. Schenley Drive Extension to Frank Curto Drive:

Cartway Width: 60'

Current Lane Configuration: Parking Lane, Travel Lane, Travel Lane, Parking Lane

Suggested Configuration: 19' Diagonal Parking Lane, 5' Bicycle Lane, 12' Travel Lane, 12' Travel Lane, 5' Bicycle Lane, 7' Parking Lane

Connectivity Explanation: This section of the Schenley Drive bicycle lane can contain a bicycle lane on both sides without changing the current configuration, because of the wide cart way through this area. The bridge over Boundary Street has some gore markings that could be eradicated and changed into bicycle lanes. The bicycle lane on the Phipps Conservatory side could continue to down Panther Hollow Road.

G. Boundary Street

4. Joncaire Street to Filmore Street

Cartway Width: 22'

Current Lane Configuration: Travel Lane, Travel Lane

Suggested Configuration: 5' Bicycle Lane, 12' lane, 5' Bicycle Lane

VII. MAJOR DESTINATIONS

In addition to challenges faced by everyday commuters, there are many circumstances within the study area that need special attention as they may create an overwhelming demand for special bicycle, pedestrian, or transit needs. These destinations may include grocery stores, sports complexes, universities, churches, hospitals, recreation centers, theatres, retail districts, etc. L.R. Kimball has broken down these major destinations by neighborhood and considered the impact each destination may have on the surrounding community in terms of bicycle, transit, pedestrian and traffic flow. L.R. Kimball believes that the following existing and future destinations should be studied before any future improvements are made within the neighborhood:

A. CARLOW UNIVERSITY

Background:

Located in West Oakland between Fifth Avenue and Terrace Street, Carlow College has an enrollment of 2,128 students.

Problem:

There is a lack of adequate pedestrian and bicycle connections between Fifth Avenue and the campus along Terrace Street.



Vertical pedestrian mover in Brazil

Recommendation:

- Vertical connection from the upper deck of the campus (student union) to the parking lot on Fifth Avenue.
- Pedestrian bridge over Fifth Avenue to connect the main campus to the science building on Fifth.

B. CARNEGIE MELLON UNIVERSITY

Background:

Located in North Oakland along Forbes Avenue, Carnegie Mellon has more than 11,000 students.

Problem:

Connection to CMU is important to consider, although some of CMU is located in Squirrel Hill. Forbes Avenue going through the CMU campus is too wide and pedestrian crossings are spaced

too far apart at Forbes Avenue and Morewood Avenue and at Forbes Avenue and Beeler Street. A significant number of CMU students cross at the Forbes Avenue and Morewood Avenue intersection to go to class.

Recommendation:

1. The section of Forbes Avenue from Craig Street to Beeler Street could be transformed into a university boulevard that's pedestrian and bicycle friendly, with a planted center median and widened sidewalks.
2. A midblock connection between Morewood Avenue and Beeler Street should also be evaluated and installed along with a pedestrian crossing signal that can be interconnected with the signals at Morewood Avenue and Beeler Street.

C. CARNEGIE LIBRARY OF PITTSBURGH

Located at the corner of Forbes Avenue and Craig Street in North Oakland, Carnegie Library is home to a collection of over 5 million and had just over two million visits in 2009.

D. CARNEGIE MUSEUM OF NATURAL HISTORY

Located at the corner of Forbes Avenue and Craig Street in North Oakland, the Carnegie Museum of Natural History attracts nearly half a million visitors each year.



Carnegie Museum of Natural History

E. MAGEE-WOMENS HOSPITAL OF UPMC

Located in South Oakland on Halket Street, Magee-Women's Hospital sees nearly 10,000 babies born each year. This adds many visits from family and friends to the area.

F. OAKLAND PORTAL (FUTURE DEVELOPMENT)

Located where South Oakland meets Uptown, west of Craft Avenue between Forbes Avenue and Fifth Avenue, this potential 150 million-dollar project is currently waiting on funding, but would contain a 200-room hotel, a 1,500 car-parking garage, a physicians building, and luxury condominiums and apartments.

G. PITTSBURGH BOARD OF EDUCATION

Located on Bellefield Avenue east of the University of Pittsburgh's Cathedral of Learning this building houses the board members of Pittsburgh Public Schools and their supporting staff.

H. PETERSON EVENTS CENTER

Located in Central Oakland at the corner of Terrace Street and Sutherland Drive in the middle of the University of Pittsburgh's main campus, Petersen Events Center is home to the University of Pittsburgh basketball. This 12,508 seats venue also holds several other events throughout the year including concerts, comedy shows, conventions, etc.



Petersen Events Center

I. PHIPPS CONSERVATORY

Located in Schenley Park along Frank Curto Drive, Phipps attracts has nearly 150,000 visitors to its botanical gardens annually.

J. SCHENLEY PARK

Schenley Park borders the eastern side of Central Oakland and contains 456 acres of woods, trails, and attractions including Phipps Conservatory, a pool, Panther Hollow Lake, and Bob O'Conner Golf Course.

K. UNIVERSITY OF PITTSBURGH

Based in Central Oakland with facilities also located throughout all of Oakland, the University of Pittsburgh's 132-acre campus is home to 12,000 employees and almost 34,000 graduate and undergraduate students.



University of Pittsburgh's Petersen Sports Complex

L. UNIVERSITY OF PITTSBURGH'S PETERSEN SPORTS COMPLEX

Located in Oakland's Terrace Village neighborhood along Robinson Street Extension, this 12-acre site will house a baseball field, softball field, and soccer field. Construction is underway and it is anticipated to open in the spring of 2011.

M. UPMC PRESBYTERIAN HOSPITAL – UPMC MONTEFIORE

Located on Lothrop Street in West Oakland, UPMC Presbyterian is connected by a pedestrian bridge to its other wing, UPMC Montefiore. It contains about 1,600 beds and employs several thousand.

N. VETERANS HOSPITAL

Located along University Drive C in Central Oakland, the Veterans Hospital has 146 beds and is currently constructing the Consolidation Building, which will house another 79 beds.



A.J. Palumbo Center

O. A.J. PALUMBO CENTER

Located on Forbes Avenue at the corner of Magee Street, this 5,358-seat arena is home to the Duquesne Dukes basketball team.

P. CONSOL ENERGY CENTER

Located on Fifth Avenue at the corner of Washington Place, the recently completed Consol Energy Center is the new home of the National Hockey League's Pittsburgh Penguins. It is an 18,087 seat, multi-purpose arena that will be used for national sporting events as well as concerts and other events.



Consol Energy Center

Q. DUQUESNE UNIVERSITY

Located south of Forbes Avenue, Duquesne University has a student population of nearly 10,000 graduate and undergraduate students. Its close proximity to Downtown and the Consol Energy Center can create challenges for commuters when events are taking place.



Duquesne University - Pedestrian Bridge over Blvd of the Allies

R. FIFTH AVENUE MIXED-USE DISTRICT

The Fifth Avenue Mixed-Use District in Uptown finds most of its businesses are located closer to the downtown area. With the newly completed Consol Energy Center located in this corridor, it is sure to see significant redevelopment in the near future.

S. FORBES AVENUE RETAIL DISTRICT

The Forbes Avenue Retail District in Uptown finds most of its businesses are located closer to Duquesne University. Many of the retail stores and restaurants are geared towards the student population. With the newly completed Consol Energy Center located in this corridor, it is sure to see significant redevelopment in the near future.

T. UPMC MERCY HOSPITAL

Located on Locust Street adjacent to Duquesne University's campus, Mercy Hospital is a 379-bed general medical and surgical hospital. About 40,000 people visit the emergency room each year.

U. AMMONS RECREATION CENTER

Located in the Middle Hill neighborhood on the corner of Bedford Avenue and Kirkpatrick Street, the recently renovated Ammons Recreation Center contains baseball fields, a pool, and basketball courts.

V. HILL HOUSE

Located in Crawford Roberts of the Hill District on Center Avenue, the Hill House is a community center used for after school programs, community meetings and houses the Hill House Association. The Kaufmann Auditorium, part of the Hill House, is used for large community gatherings.

W. NEW GRENADA THEATRE (FUTURE DEVELOPMENT)

Located at the corner of Devillers Street and Centre Avenue in the Middle Hill, the New Grenada Theatre sits vacant today, but a 1.1 million dollar renovation is in place to restore the historic theatre.

X. SHOP 'N SAVE SUPERMARKET (FUTURE DEVELOPMENT)

Plans were announced by Shop 'n Save supermarket to build a full market at the corner of Centre Avenue and Heldman Street in Crawford Roberts.

Y. THELMA LOVETTE FAMILY YMCA (FUTURE DEVELOPMENT)

Ground was recently broken for this new YMCA facility located in the Middle Hill on Centre Avenue at the corner of Elmore Street. This facility will include a pool, gymnasium, computer laboratories, and meeting centers. It is expected to open in early 2012.



Thelma Lovette Family YMCA

VIII. CONCLUSION

The findings and recommendations in this report have been made without the benefit of any traffic, pedestrian, or transit data collection and analysis, as this was not included in our scope. L.R. Kimball is well aware that with the requisite data and further technical evaluation and analysis, the aforementioned recommendations may change based on the outcome of further analysis and community input. The recommendations could be viewed as a menu of short-term and medium- to longer-term improvements that can be advanced in stages, with the most obvious and less expensive ones, such as sidewalk cleanup and repair, restriping of pedestrian crosswalks, bus stop consolidation, etc., coming first. Other more expensive projects such as intersection reconfigurations and installation of new signals, may require further traffic studies as they may be required by the City.

OPDC, HHEDC, OTMA, PCRG and UP should develop and implement a planning process that will engage community and institutional stakeholders, residents, bike and pedestrian advocacy groups (Bike PGH) and other interested parties to solicit ideas on the pros and cons of implementing the more challenging recommendations, such as removing on-street parking in retail corridors to install bike lanes., etc.