

INCOG BICYCLE AND PEDESTRIAN MASTER PLAN



Response to Questions
October 15, 2013

1. Discuss problem-solving approaches the team has used or anticipates using in developing Bicycle/Pedestrian Master Plans for other regions/cities?

Different problems call for different approaches though all ultimately take similar steps to reach a solution. A solution requires a decision to be made that is supported with processes, analyses, information, and communications sufficient to gain trust, support, and follow through. Problems will range from individuals with a single concern to challenges that involve multiple concerns, which will call for creative, multi-faceted answers that need the endorsement of more than one person with more than one perspective. Our team, led by Kittelson & Associates, Inc. (KAI) and featuring Red Plains Professional, Inc. and Vitruvian Planning, has the experience and breadth of knowledge and skills to address the planning, policy, engineering, and programmatic problems.

This project is a regional bicycle and pedestrian plan and will have both regional and local concerns. It will be important to bring multiple agencies together and engage with the large regional population, adding further complexity since the issues and opportunities will vary across effective groups. Not only are we connecting individuals to destinations, but we're connecting neighborhoods to

neighborhoods and communities to communities. The potential of the plan is enormous, but so are the pitfalls.

To avoid these pitfalls, we expect to establish a working vision statement at the onset of the project. This statement will help guide the project toward the ultimate vision. The vision statement is intentionally a broad set of principles that steers the direction of the problem and helps guide the overall project approach. When conflict does arise, the vision statement will provide an agreed upon document that can help remind parties of their joint interests and allow movement toward creative solutions that are mutually beneficial.

In addition to the visioning statement, we will use the following problem solving strategies:

- **One-on-one conversations emphasizing listening and learning a person's perspective before together exploring possible solutions and their pros and cons.** This has proven to be especially effective at addressing narrow single issue matters that might otherwise become time consuming delays at inopportune times during a project.
- **Technical Advisory Committee (TAC) work sessions.** On other projects, these have proven to be very productive and efficient. Addressing problems together

in this format gives the members the opportunity to contribute, collaborate, debate, and refine ideas quickly in real time, thereby accomplishing in a single session what might have taken months if approached in an all too common linear, iterative process of "report, review, reply, refine, report again."

- **Confirming the range of acceptable solutions with the agency or individual ultimately responsible, before discussing solutions with others.** It is very important to not put those responsible for implementation in a position of having to be on the defensive or of being uncooperative during the planning process.

Lastly, we will provide INCOG with a **decision-making process** to allow the development of local, implementable solutions so that the plan comes equipped with a process that allows for the realization of the established vision. Solutions throughout the region aren't necessarily the same, and the decision approach will allow for the flexibility necessary to provide local solutions. This decision-making process will be refined through case studies of prioritized corridors in the INCOG area. This will allow the team to make adjustments to the process as necessary and ensure that INCOG staff and stakeholders are properly trained for when they use the process on additional corridors after the project has concluded.

2. Describe how your team plans to utilize analytical tools such as GIS to conduct demand analysis and analysis of existing infrastructure.

Our Capabilities

The KAI led project team includes skilled professionals and national experts who offer decades of progressive research experience, technological innovation, and a diverse portfolio of industry-leading work in bicycle and pedestrian infrastructure evaluation and demand analysis. KAI applies state-of-the-practice techniques and technology in the analysis of bicycle, pedestrian, transit, and automobile operations; we understand that sound analysis begins with a solid understanding of the needs of project and using the most cost effective and appropriate tools available. Because KAI helped develop many of the tools and techniques used to analyze existing and proposed transportation facilities (*Highway Capacity Manual [HCM]*, *Transit Capacity and Quality of Service Manual*,

Working Vision Statement

We, the residents of the Claiborne neighborhoods are at the heart of the future Claiborne Avenue Corridor.

In that future we celebrate our culture and family traditions; our historic neighborhoods are safe and affordable for all who want to live here; our neighborhood streets, community parks, and the Lafitte Greenway fill with family gatherings and the music and parades of second line and Mardi Gras Indian traditions.

Claiborne, St. Bernard, Esplanade Avenues, Broad and Canal Streets, and Martin Luther King, Jr., Boulevard thrive with locally-owned businesses, affordable goods and services for daily living, reliable

employment for residents, and positive learning experiences for neighborhood youth.

Quality public transit is convenient, reliable, clean and affordable with a broad reach to jobs and neighborhoods city-wide. Traffic even on the busiest streets yields to bicyclists, crossing pedestrians and the festivities that sometimes spill out from local cross streets.

The Medical District provides affordable health care and living-wage jobs. New industries in the city attract workers who support Claiborne Corridor businesses and respect and appreciate what we value in our communities.

Working Vision Statement for the Livable Claiborne Communities Study

Highway Safety Manual), KAI staff understands the steps, strengths, limitations, inputs, and outputs of analysis procedures and tools to maximize their effectiveness. Our wealth of staff experience allows KAI to apply the right tool at the right level resulting in time savings and reduced costs.

For this effort, KAI and Red Plains see themselves as extensions of the MPO staff, which includes several very proficient GIS technicians. Where possible, the KAI led project team will work collaboratively with MPO staff to allow the project team to focus their resources on providing the greatest benefit to INCOG. Our team will use GIS to develop custom GPS data dictionaries; Trimble GPS handheld units to collect data; Jamar Traffic Software/equipment to complete traffic analysis; and TerraSync software to collect, catalogue, and map geographic features and volume counts pertaining to project. Red Plains will also use Pathfinder software to complete geometric correction of features/databases and the conversion to required file formats and ESRI software to create a custom file Geodatabase and develop maps depicting current conditions, demographic changes, trends, usage numbers, public inputs, and future goals.

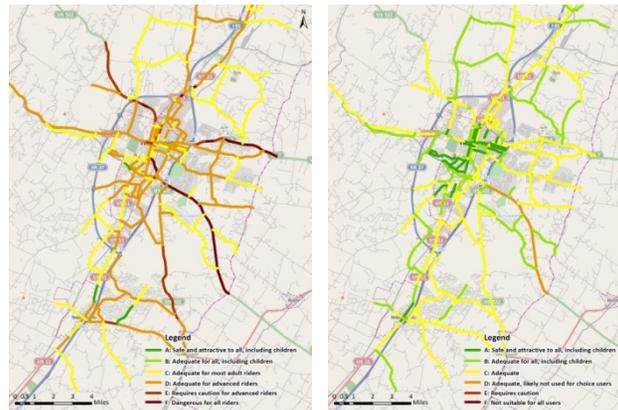
Because KAI works with staff in offices across the country on a daily basis, working with the local MPO staff will be similar to working with other KAI offices. KAI regularly uses online tools like join.me and R*HUB for web meetings. These tools allow KAI staff to share desktops, participate in video and teleconferences, host and record webinars, and hold meetings that vary in size from only a few participants, to hundreds of meeting attendees. Further, because of our experience in working across offices, we know from experience the value of communicating often and regularly. However, we also understand the value of working collaboratively in person, and for this project, we would like to work locally with MPO staff through multi-day work sessions at key junctures of the project.

Existing Infrastructure Analysis

On previous bicycle and pedestrian projects, we have conducted an analysis of the existing infrastructure using several different methods. At one end of the spectrum, we have completed a full multimodal level of service

(MMLOS) evaluation to determine the level of comfort for bicycles and pedestrians. This MMLOS analysis is based on procedures document in NCHRP Report 616: *Multimodal Level of Service Analysis for Urban Streets* and adopted by the HCM 2010 (KAI staff developed both documents).

However, completing an MMLOS evaluation for the entire MPO, as was completed for the Northern Shenandoah Valley Regional Commission, City of Winchester-Frederick County MPO in Virginia, is both data and resource intensive and would likely prove to be both impractical and infeasible for INCOG.



Bicycle (left) and Pedestrian (right) Multimodal Level of Service Results for the NSVRC/Win-Fred MPO

For this project, we propose to conduct an evaluation similar to the Level of Traffic Stress (LTS) methodology developed by the Mineta Transportation Institute. This methodology, adopted by the state of Oregon for the analysis of bicycle facilities, breaks road segments into four classifications for measuring the effects of traffic-based stress on bicycle riders. This measure of traffic stress quantifies the perceived safety issue of being in close proximity to vehicles. This methodology allows a quick assessment without going into the data requirements and calculations of the MMLOS method and is well suited for high-level plans such as corridor and regional plans.

The four classifications are:

LTS 1. Represents little traffic stress and requires little attention, so is suitable for all cyclists, including

children. Traffic speeds are low, volumes are low, and there is no more than one lane in each direction. Typical locations include residential local streets and separated bike paths/cycle tracks.

LTS 2. Represents little traffic stress but requires more attention than children can handle, so only suitable for adult cyclists. Traffic speeds are slightly higher but speed differentials are still low and roadways can be up to three lanes wide. Typical locations include collector-level streets with bike lanes or a central business district.

LTS 3. Represents moderate stress and suitable for most cyclists. Traffic speeds are moderate but can be on roadways up to five lanes wide. Intersections are still perceived to be safe by most adults. Typical locations include low-speed arterials with bike lanes or moderate speed non-multilane roadways.

LTS 4. Represents high stress and only suitable for a few cyclists. Traffic speeds are moderate to high and can be on roadways from two to over five lanes wide. Typical locations include most arterials and other high-speed or multilane roadways with or without bike lanes.

Perhaps the biggest benefit behind the use of the LTS system is the limited amount of data needed to conduct the analysis. As seen in the table below, the key inputs are the number of vehicle lanes and the speed limit. While the methodology does get more complex in locations with bike lanes and parking, all of the inputs for the LTS results are readily available from regional travel demand models, allowing the KAI team to conduct the LTS evaluation for the existing system and the planned future system. It should be noted that separated bicycle facilities are always classified as LTS 1.

Speed Limit (mph)	Number of Vehicular Lanes		
	2-3	4-5	≥ 6
≤ 25	LTS 1 or 2 ¹	LTS 3	LTS 4
30	LTS 2 or 3 ¹	LTS 4	LTS 4
≥ 35	LTS 4	LTS 4	LTS 4

¹Use the lower value for streets with unmarked centerlines or classified as a local roadway with no more than two lanes.

When using the results of an LTS evaluation, the results allow the project team, TAC members and elected offi-

cial to easily identify areas with opportunities for additional connections within the community. Further, by identifying individuals’ own particular traffic stress comfort level, a user can filter the segments that provide more traffic stress than they would like and the identification of the extents of one’s personal effective bicycle network.

Demand Analysis

Understanding existing and potential bicycle and pedestrian demand will allow INCOG to focus and prioritize investments in areas that directly impact the most people. Assessing non-auto demand characteristics includes two key methods:

- **Public Outreach:** Daily bikers and walkers are the region’s experts on assessing where issues exist and areas that are most popular for non-auto users of the region’s transportation network. Reaching out to the active transportation community through online mapping tools, targeted surveys, and public meetings will provide INCOG and the consultant team the ability to identify specific areas of emphasis for future improvements. More detailed efforts are outlined in subsequent responses.
- **Demand Analysis:** The basis for any bicycle and pedestrian demand analysis begins with identifying areas with high residential and/or employment densities. Beyond those basic indicators, trip generators must also be incorporated into the analysis, including a range of high, medium, and low generators. These generators may include universities and colleges (e.g., University of Tulsa, Oral Roberts University), tourist destinations (River Walk, the Golden Driller, and the Oklahoma Aquarium), major transit stations, schools, hospitals, recreational centers, retail and entertainment, parks, and places of worship.

These two key components will be mapped to highlight areas with high concentrations of existing and potential bicycle and pedestrian trips. By identifying these areas of high bicycle/pedestrian demand, the KAI team will then be able to target future mobility improvements at specific locations where the most users and highest benefit for the INCOG community can be expected.

Latent Bicycle and Pedestrian Demand

KAI has developed a process for identifying latent demand for walking and bicycling. Our Active Transportation Demand Estimator (ATDE)—which considers demographics, land use, transit service, and key destinations—will be tailored to the specific conditions and desires of INCOG and its community. This will help understand where people are interested in walking and bicycling for transportation, even where street and sidewalk conditions may limit options for non-auto travel.

Pedestrian and Bicycle Travel Potential Criteria

Criterion	Notes
Population Density	Higher population densities are directly related to increased levels of walking and bicycling due to reducing the distance between origins and destinations.
Employment Density	Jobs are a major driver of travel and can help predict the amount of freight and vehicle commuting that must share the network with pedestrians and bicyclists. Many people also walk or bike to commute.
Transit Access	Walking and biking are the most common ways to access transit.
Density of household motor vehicle access	Households without access to a private vehicle depend on walking, biking, and transit for travel.
Access to Education	Schools, colleges and universities are major trip generators and college campuses have high rates of walking and bicycling.

What is your recommended methodology for determining the range of bicycle & pedestrian infrastructure needs, developing cost estimates, and prioritizing the improvements for construction with an implementation schedule? Discuss your past experience with the use of this methodology.

The prioritization process is expected to happen in three phases: 1) identification of projects, 2) refinement of the prioritization methodology, and 3) prioritization itself. The three steps in the process are iterative: the methodology is used to identify and rank corridors, then used

again to identify/rank intersections within identified corridors at which to focus resources and conduct field assessments in order to identify specific types of improvements. Once specific improvements are identified, the methodology can then be used to rank and prioritize each type of improvement.

Identification of Projects

Our team will synthesize the results of the existing infrastructure and demand analysis to develop recommendations for bicycle and pedestrian networks. Routes and facilities will be identified based on four items:

1. **Gaps and Deficiencies:** The KAI team is familiar with the INCOG transportation system through Red Plains’ work in the area and will become intimately familiar with the system through the LTS and ATDE processes, along with input from INCOG staff. This experience combined with our in-depth knowledge of existing facilities and land uses will expedite the needs analysis process. GIS mapping of existing facilities and key generators will complement this knowledge to efficiently identify deficiencies around these important locations.
2. **Demand for Bicycling and Walking:** We will identify both existing and latent demand, including connections between key generators of bicycle and pedestrian activity (e.g. major employers, parks, schools, etc.).
3. **Community Input:** Feedback from the public and the Advisory Group will be critical. This feedback will come through meetings, an open house workshop, and via an online interactive mapping survey. This information will help identify high demand facilities and areas where more walking and biking would occur if certain obstacles were removed.
4. **Crash History:** Actual and perceived safety significantly impacts decisions to walk, bike, or drive. Using recent crash data, our team will determine high crash locations and identify specific improvement options that would be the most effective for specific crash types. The set of needs will be mapped, described, and then communicated to the public through visualization techniques.

Needs will be categorized as system-wide (i.e. policy and program level), facility (e.g. gaps and new connections), or at the crossing level. The facility needs will help populate the initial list of prioritization elements, which are the specific intersections, roadway segments, areas, or other features that are considered during the prioritization process.

Refinement

The refinement of the prioritization method starts at a high-level and becomes more focused as variables, data, and technologies are considered. Items that represent a range of community values are considered for input. These include the previously developed LTS and ATDE outputs, along with other items developed in conjunction with INCOG staff, TAC members, stakeholders, and community input. These could include items like access to schools or a particular focus on safety or a population group.

Prioritization

The final phase of the prioritization process allows for the identification of specific projects and treatments and is completed in multiple prioritization rounds. The first step is to develop high-level cost estimates based on typical construction costs in the area multiplied times the length of the project. This is followed by a pre-screening round, in which potential projects are prioritized based on eligibility for funding from an identified funding source. Next, projects are screened based on a range of variables and through community input.

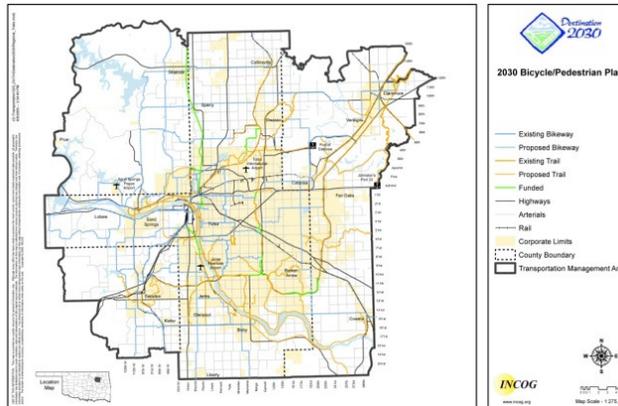
An iterative prioritization process helps to save time and resources by limiting the data and inputs needed for each successive round. The project team in conjunction with INCOG will evaluate how best to structure the prioritization process given their prioritization purpose, available staff time and resources, and other considerations.

During each prioritization round, the project team will help identify projects through the use of scaled variables that have been weighted to represent community values previously identified. Those projects that achieve the greatest number of outcomes (e.g. safety, connections, etc.) and have a high return on investment will be prioritized first.

4. What type of data and survey methods do you anticipate using to create a comprehensive regional bicycle/pedestrian master plan?

The backbone of any study lies with the knowledge of current conditions for a focus area. This may include areas with safety concerns, locations where infrastructure is not currently meeting the demands of the public, or interesting places where residents and tourists enjoy biking and walking. Developing a solid foundation of knowledge serves the community well and ensures voices are heard and adequately represented. To ensure all perspectives and points of interest are covered, a wide range of data and background knowledge must be gathered and analyzed.

Existing Facilities



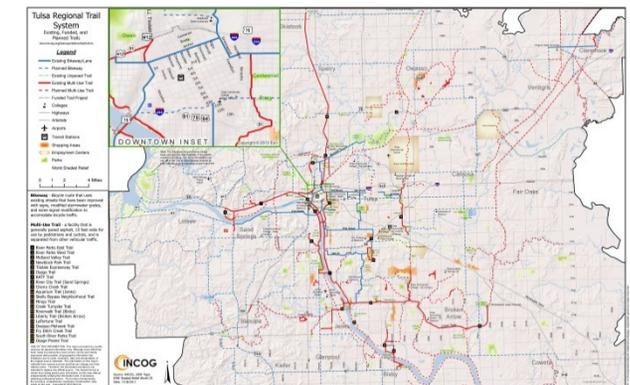
With a population of approximately 950,000 residents, the INCOG area has an excellent regional path network with approximately 60 miles of multi-use paths and sporadic other dedicated bicycle facilities, including a cycle track on Delaware Avenue near the University of Tulsa. In addition, the 2030 and 2035 long-range transportation plans both include on-street facilities, but lack a prioritization of the potential projects. PLANiTulsa also provides a general discussion of pedestrian and bicycle facilities and includes promising potential cross-sections.

Before moving forward with new plans and bicycle infrastructure, it is vital to fully understand the existing on- and off-street bicycle facilities and their gaps and defi-

ciencies. Typical concerns from the biking and pedestrian communities in most areas include:

- Indirect bicycle routes
- Lack of dedicated facilities for biking
- Safety riding in mixed traffic conditions
- Limited parking opportunities at the final destination
- Poor pavement conditions
- Gaps in the network

Details of these issues will be developed through a range of data-gathering opportunities, including public outreach (e.g., surveys, online mapping tools that allow comments, public meetings), data collection in the field, review of GIS databases, and local knowledge. By combining a strong foundation of local knowledge and national expertise, the KAI team can more readily understand common issues that make it uncomfortable and inconvenient to bike and walk in the towns and cities that comprise the INCOG area.



Tulsa Regional Trail System, including Existing, Planned, and Funded, Trails and Bikeways

Sidewalks in poor condition, sidewalks with significant gaps, and areas where sidewalks do not exist should also be inventoried in GIS and identified as areas of high importance. Deficient sidewalk and pedestrian conditions result in poor connectivity to areas of interest, limited transit accessibility, and an unfavorable level of comfort to pedestrians, particularly those without access to automobiles.

Areas with poor pedestrian crossing conditions must also be inventoried to fully document the pedestrian experi-

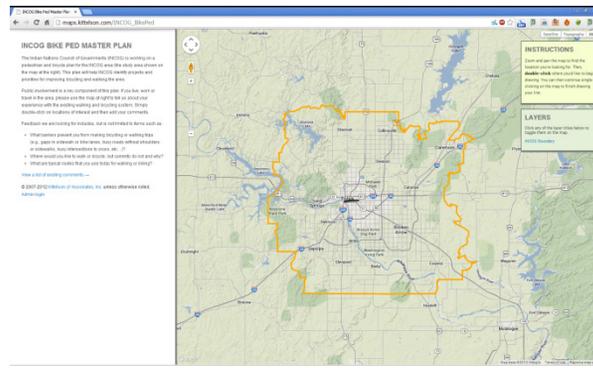
ence in the INCOG area. Intersections with large cycle lengths (e.g., over 120 seconds), midblock locations with no formal crossing facilities, channelized right-turn lanes where auto traffic is not required to stop, and transit stop locations are all areas where pedestrians are most vulnerable and therefore must be documented accordingly. In a region where nearly 6% of the population does not have access to a personal automobile, conditions of the pedestrian environment can be a major impediment, particularly to a community with existing mobility constraints.

The importance of the existing regional trail system cannot be understated. The trail system provides connections between the area’s many parks including: Zeigler Park, River West Festival Park, Newblock Park, and River Skate Park, as well as the Oklahoma Aquarium, several soccer complexes, areas of high-density residences and employment, and the Riverwalk. Recreational trails should ultimately provide conditions that accommodate bicyclists and pedestrians of varying ages and abilities. Documenting areas where the trail network is less than desirable due to surrounding areas and lighting, difficult to access due to poor wayfinding, and of limited width to adequately accommodate larger groups will all be documented and inventoried in a GIS database with supporting easy-to-follow maps.

End of trip facilities, such as secure and convenient bike parking, are often serious impediments to increasing the numbers of commuter and recreational bikers in the region. As Tulsa Transit continues to expand its footprint, especially as a result of the recent Regional Transit System Plan (RTSP), also known as Fast Forward, the connections for walkers and cyclists must also be emphasized. On new lines, such as the proposed Peoria/Riverside bus rapid transit (BRT) project, it is important to plan in advance for connections to the proposed transit service and for opportunities to provide bicycle and pedestrian service along the route itself.

To assist in these efforts, the KAI team will develop maps of the existing bike parking/storage facilities throughout the region to better understand the existing infrastructure, as well as typical bicycle parking utilization and gaps in the sidewalk network. The team will also identify areas

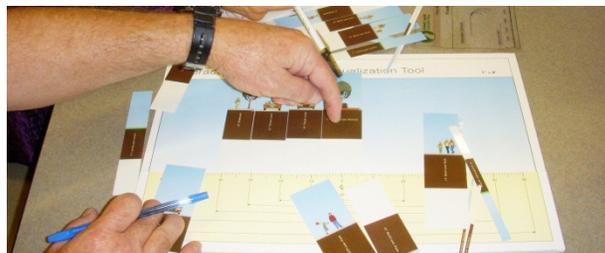
where bike parking and storage should be considered in the future. Further, innovative programs such as the Rack-N-Roll program at the Denver Avenue station will be explored, and piloted.



KAI Interactive Comment Mapping Tool

Several online resources will also be used. As mentioned previously, daily bikers and walkers are the region’s experts on assessing where issues exist and areas that are most popular for non-auto users of the INCOG’s transportation network. Use of KAI’s online mapping tool will allow current and potential new cyclists and pedestrians to highlight where they currently walk and ride, as well as where they would if a network were available.

In addition, KAI has developed and successfully used a public workshop tool that allows participants to build and visually test different roadway cross-sections. The tool comes in two versions: 1) a large group format version that is approximately 8-feet wide by 2-feet tall; and 2) a table top version for small groups. The tool consists of a background board representing a maximum 120-foot right-of-way. Each workshop attendee receives a variety of cut-outs depicting roadway elements of varying widths such as vehicle lanes, bike lanes, medians, and sidewalks.



Participants can then arrange the lanes and other elements to reflect the characteristics they would prefer for the roadway segment.

5. There are numerous existing local and regional plans that require careful consideration in developing the master plan. For example, the City of Tulsa Comprehensive Plan, ADA Transition Plan, Arterial and Non-Arterial Rehabilitation projects, Arterial Widening projects, Small Area Plans, INCOG Trails Master Plan, Major Street and Highway Plan, etc. What is your proposed approach to coordinating with existing local and regional plans?

Overview

Great benefit is derived from establishing the foundation of plans and policies that should guide master plan development. In so doing, vision and purpose are framed and a common understanding is developed, providing strong reference points for all participants. Thus, our approach begins with a thorough review of current policies and previous plans. Committees (Steering, Technical, Policy, Implementation) will be established, committed to productive service, and equipped with objective information and facilitation to support their work. Vision, purpose, policy, and guidance will be reviewed, refined, and agreed to as the “guiding principles” by which all will work to craft the master plan. Apparent conflicts or gaps in plans and policies will be identified and resolved by appropriate agencies and decision-makers and the guiding principles will be finalized for use by all.

Initial Approach

Following the assembly and review of existing plans by the team, we would arrange a joint meeting of the agencies responsible for each plan. During this meeting we would summarize our understanding, obtain confirmation, identify potential conflicts and/or gaps, discuss possible solutions, and define the steps necessary to obtain final resolution to any conflicts. Subsequent to the resolutions, we would begin to undertake the more complete approach described below.

Complete Approach

Our approach can be understood in layers. Plans and policies provide the foundation. Guiding principles (described above) frame the walls within which all agree to work. Engagement of stakeholders, advocates, and benefactors generates ideas, solicits input, and produces options that may become elements of the master plan. Analysis proves the logic and effectiveness of considered options. Evaluation of the results, based on measures derived from the guiding principles, helps to select, sort and prioritize the tested options. Pricing and timing of the resulting programs and projects creates the implementation framework each agency will need. Mapping and writing generate representations of the draft master plan to support a clear understanding of the outcomes derived from master plan implementation. Decision support, provided on a continuous basis, ensures credible and objective information is available at the right time and in effective formats for those who must use it.

Skills & Tools

A variety of professional skills and tools are required to deliver this approach. We provide planners, engineers, engagement specialists, and a number of specialized analysts (e.g. safety, multimodal, operations, policy, funding, governance, land use) whose focus is on producing safe, complete, and interconnected multimodal systems to support sustainable communities. The tools we use and the analytics we conduct are state-of-the-art and create a basis of technically sound and objective information on which all participants and decision-makers can depend. Many tools were created through research by our team members. Knowing not only how to use these tools, but what their strengths and weaknesses are, enables us to bring greater discernment to interpreting the results for decision-makers and laypersons. Equally important, our engagement specialists have the technical expertise to understand the work that is being completed and the communication prowess to translate this information in multiple forms to meet the needs of wide-ranging audiences. They have the uncanny ability to draw people in, provide active engagement, and evolve participants into champions.

Key Outcomes

This approach ensures that the vision and wisdom of existing plans and policies are infused into and throughout the master planning process by their translation into guiding principles that key participants endorse. Established as such, the guiding principles are used to develop, evaluate, select, and prioritize the best solutions. The confidence developed through the use of the guiding principles and the outcome-based strengths of the selected solutions allows the master plan to include an implementation plan that multiple agencies are capable of supporting.

6. When discussing matters related to bike lanes and newer treatments, such as cycle tracks and buffered bike lanes, describe your team’s experience communicating with citizens and the media regarding how these treatments work and when they are appropriate to apply.

KAI and our team members have long been at the forefront of transportation innovation for pedestrian and bicycle issues, as well as for a broad range of vehicular and transit transportation elements as well. KAI has been a transportation research leader for over 25 years, continually bringing new and innovative concepts to solving community transportation challenges. As such, we are well versed in the communication of new ideas at the technical, community, and political level.

We have recently completed three community pedestrian and bicycle plans in the Boise region where a key focus was to review a full menu of potential treatments and work with each neighborhood to determine which treatments they preferred and which would be most appropriate and helpful to encourage walking and bicycling in their neighborhood. The communication strategy used “menu” graphics (see below) for initial education and to work through the pros, cons, and suitable applications of various treatments.

From there, we used field visits to example treatments, video footage of function and use, graphical renderings of what the treatment would actually look like in place, and, in some cases, in field “test” treatments that implemented a new treatment on a roadway in a temporary fashion (with cones or taping) so that the communi-

ty could experience firsthand the design and use of a new feature.



7. Give an overview of the specific staff you are proposing for this project and the roles (i.e. traffic analysis, public involvement, GIS analysis, conceptual design) they will fill for the project. Include information about percentage availability to dedicate toward this project.

The KAI team proposed for this effort have been specifically selected based on their expert ability, passion, and desire to assist INCOG with this regional effort. We have a diverse team of engineers and planners who can address each element of the Master Plan process.

Figure KAI Team Roles and Availability

Team Members	Role	% Availability
Sonia Daleiden 	Project Manager, Public Involvement Lead, Planning, Traffic Influences	40
Mike Coleman 	Project Principal, Senior Oversight, Planning and Implementation	40
Alek Pochowski 	GIS, Analysis, Planning, Traffic Influences	30
Greg Massey 	GIS, Cost Estimates, Project Prioritization	25
Chris Danley 	Planning, Health Impacts, Project Prioritization	30

8. What other projects are this team and the Principal(s) committed to or pursuing that might interfere with staff availability?

If selected for this project, the KAI team and specific staff outlined above are fully committed to providing their focused dedication to INCOG and its partners throughout the extent of the Master Plan process. While we actively work on multiple projects, KAI, Red Plains, and Vitruvian Planning are all carefully selective about which efforts we pursue and take on so we continually ensure the necessary resources and dedication to each client. Any other projects we work on will only benefit the INCOG effort with providing additional experience and insight; they will never take away availability or focus. We view the INCOG Bicycle/Pedestrian Master Plan as a hallmark project not only for your region but also for our team and, as such, we will fully invest in see its successful outcome.

9. The Bicycle/Pedestrian Master Plan will require a multi-disciplinary staff. This includes expertise in traffic operations, bicycle facility design (on- and off-road), commute shed analysis, public participation and visualization. Describe how your team plans to integrate this expertise in the Tulsa Bicycle/Pedestrian Master Plan.

Thoughtful, targeted approaches to transportation decision-making within INCOG will help maximize the benefits of improvement projects, meet the safety and mobility needs of the many residents and visitors who depend on walking and bicycling, and get the best results out of the inevitable tradeoffs necessitated by constrained rights of way. Managing regional multimodal roadway environments requires tools and polices to make decisions based on impacts to all users. Roadway design and operations guidelines may be amended to address key issues affecting bicycle and pedestrian travel, such as traffic calming, intersection design, and signal spacing. Additionally, increased coordination with local efforts is needed to ensure that bicycle and pedestrian travel are fully considered in local planning efforts and private development permitting.

KAI’s team is naturally multi-disciplinary due to KAI’s firm-wide philosophy of providing employees with expe-

riences in all of the firm’s market areas. The staff identified to work on this project has national and international experience in pedestrian and bicycle master plans, corridor studies, safety studies, development work, transit operations, urban design and research. This breadth of experiences provides us with a unique perspective on the tradeoffs and considerations associated with our final recommendations.

10. Describe your team’s approach to public involvement on this project.

There are complementary capabilities within the KAI team and INCOG to provide an extensive and meaningful local community engagement experience. The communities and stakeholders encompassed by this effort will be both disparate and distinct. Our team understands the types of concerns that are likely to arise can we listen with open ears in each encounter to properly interpret that specific community values and priorities.

The first recommended element of our public involvement approach is **branding**. Branding the Master Plan process in a relatable, easy to identify, and attention grabbing manner quickly sparks interest and buzz from the community and provide consistent messaging throughout the course of the project. Once it gets people’s interest, it also helps to maintain interest over the project duration and provides an easy way for them to remember where to find information and communicate it to friends, neighbors, and community members. Finally, branding allows a consistent way for staff and community champions to continue the story into implementation once the master plan is complete. To build community excitement from the onset, we suggested the brand “Find Your Path” in our Statement of Qualifications in recognition of the existing path network that serves as the backbone of this regional effort. We understand a key focus of this plan will be supplementing the existing pathway network with on-street facilities, regional amenities, policies, and actions that will truly make bicycling and walking a safe, effective, and fun way to travel for all members of the communities. We are happy to continue to use this brand or to develop one with INCOG and the community that represents their needs and desires.

We have found that public ownership and engagement is best achieved by a high level of transparency and regular opportunities for engagement. Emphasizing that near-term implementation of key project recommendations as an expected outcome will do much to raise and sustain stakeholder interest and participation in this project. Our ability to collect, analyze, and synthesize goals, priorities, and concerns from a wide range of perspective has garnered community confidence in the communities we’ve served.

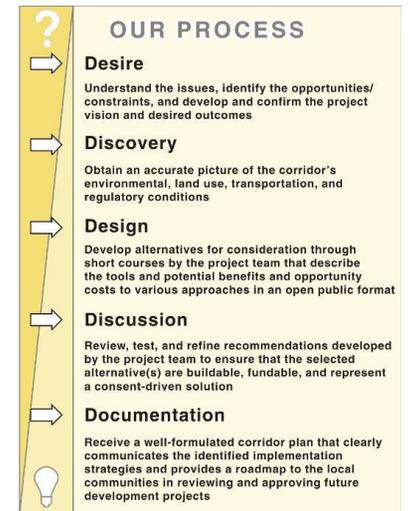
HIGH LEVEL APPROACH

The public involvement and agency coordination program will be tailored by the team around the 5D process: Desire, Discovery, Design, Discussion, and Documentation. A core element of this program is the concept of Active Stakeholder Engagement. We firmly believed that a successful plan is developed from the bottom up

and involves active stakeholder participation throughout the entire plan development process. Through this 5D process, the KAI team will apply certain innovative elements to engage stakeholders, disseminate information to the public, apply state-of-the-practice technical elements, address challenges along the way, and support the plan development for INCOG and stakeholders.

Desire

The desire stage identifies and engages the stakeholders and allows the project team and stakeholders to understand the issues, opportunities, and constraints of the downtown corridor. Past work and the PBAC’s SMART Goals already illustrate the many priorities that will guide the project, but within each of these there are conflicts



5D Public Involvement Process

that must be addressed in addition to the physical challenges within the corridor. Innovative items the KAI team would expect to apply include:

- **Public Involvement Tools Worksheet:** Supports development of the Public Involvement Plan and provides flexibility to matching the appropriate tools with the specific need.
- **Establish a Project Website:** Effective way to convey information to stakeholders and public, use for conducting surveys, and hosting virtual open houses. Visit www.172nd.com to view an example of an effective website KAI created for the 172nd/190th Corridor Plan in Clackamas County, Oregon.
- **Field Trip with Stakeholders** (see photo): Drive, walk, bike the study area and conduct interviews with the stakeholders to better understand their issues and needs. Observe firsthand some of the issues that may occur along the corridor.



Stakeholder Field Trip

Discovery

The discovery stage focuses around understanding how the corridor operates today and how it is envisioned to operate in the future. The KAI team offers the following innovative tools for use and expects that several of these would be applied:

- **Web Tool/Surveys:** Ask the public and stakeholders to identify their O-D patterns, key destinations, safety issues, and improvement needs for their bike and pedestrian trip, transit usage preferences. This may prove especially useful for assessment of potential transit technologies, and needed linkages between travel modes.
- **High Definition Video for Data Collection:** Cost-effective method for collecting vehicle counts, pe-

destrian/bicycle counts and patterns, and parking turnover data.

- **GIS Evaluation/Prioritization:** Use of GIS database to identify pedestrian and bicycle facilities, opportunities and constraints on the corridor in a cost-effective manner.
- **Virtual Open House** (see photo): Use of an open house format via the project website <http://voh.klamathfallstsp.com> provides a cost effective approach to providing and gathering information from the stakeholders and public. The virtual open houses can be used in conjunction with a Public Informational Meeting and would provide our team with feedback from residents who may not normally engage in a typical public involvement process.



Design

The design stage focuses on the development of alternatives through active participation and engagement from stakeholders. The KAI team expects to apply many of the items discussed below on this plan:

- **HCM MMLOS:** The HCM MMLOS methodology may be very useful in this case as it allows for the assessment of the value of providing pedestrian and bicycle facilities on given streets to prioritize where investments will have to most return. It also allows the assessment of tradeoffs between various alternatives for allocating space for vehicles, transit, bicy-

cles, and pedestrians within constrained rights-of-way.

- **Sketch Development and Analysis:** Using the bottom up approach, active stakeholder involvement provides an opportunity for the stakeholders to identify and develop alternatives for the corridor. These alternatives are refined in a sketch format overlaid on an aerial and brought back to the stakeholders for evaluation.
- **Interactive Roadway Modeling Tool:** Engage the stakeholders and public by giving each person cards (also can be computer-based) to lay out different options for the roadway cross-section (i.e., sidewalks, bike lanes, parking, travel lanes, etc.) and better understand the tradeoffs of various configurations within a constrained cross-section.



Discussion and Documentation

The discussion stage brings the analysis and evaluation of the alternatives to the stakeholders and public for input, further evaluation, and selection of an acceptable, viable concept for the corridor and study area. The documentation stage focuses on the formation of the final plan that provides INCOG, stakeholders, and public with the steps to moving forward. Our team envisions this stage to involve items such as:

- **2-D and 3-D Renderings and/or Visualization:** Screened alternatives from the evaluation process can be developed to show a graphical rendering of the horizontal and vertical layout of the concept. 3-D Visualization can also be provided similar to KAI's work on Bethany Boulevard in Portland, Oregon: <http://www.youtube.com/watch?v=Qy4e1NzI46Q>

- **Effective Plan Development:** Envision a relatively brief (<25 page) summary report that includes a description of the process, proposed projects and costs, planning maps, and recommendations for changes in policies and/or ordinances.

OTHER STRATEGIES

In collaboration with INCOG and partnering agency staff, we will develop a set of in-person and distance-based communication strategies for this effort.

These strategies may include the following:

In-Person Strategies

- Meeting with key advisory groups and stakeholders (economic development representatives, community groups, neighborhood groups, key employers, University of Tulsa, etc.)
- School and youth-based outreach to educate and explore solutions at the community level
- Community open houses that are tailored to each of the communities/geographic areas identified for the project
- Emphasis on improvements relevant to community and business member lives—products rather than process
- Community tours/site visits
- Going where the people are: community fairs and events through staffed tables and displays
- Briefings of elected and advisory bodies as needed
- Interactive exercises at public meetings and workshops that involve as opposed to just informing (see photos)

Distance-Based Strategies

- Preparation of engaging flyers, newsletters, media releases and other background information in terms that matter for people’s lives
- Using team expertise in virtual, on-line participation, all for engagement 24/7 from anywhere via the INCOG and/or project website
- Interactive Commenting Map (see detailed description below)
- Employment of accessible social media techniques including alignment with the existing communication protocols

- Creative use of video and other visualization tools throughout the project to illustrate key concepts and potential solutions
- Outreach to a broad range of advisory boards and commissions throughout the region
- Visual preference surveys and visual simulations
- Media Relations to build relationships of trust and mutual interest with reporters and create “third party endorsement”

KAI Interactive Input Map Website

For a variety of planning projects, KAI has developed an interactive project map website that allows technical staff, stakeholders, and the general public to provide feedback on study area issues, needs, priorities, and preferred routes on their own time. The website can be hosted by KAI and can be left active for however long makes sense for the project. The web link can be distributed to a large group of stakeholders and they can access the site whenever is most convenient for them. Once on the web site, stakeholders can view the study area, zoom into areas of particular interest, add comments and recommendations with a simple click and comment feature, view comments provided by others, and leave general comments about the project. The comments received can then be compiled and summarized graphically by the consultant team for use in the identification of issues, projects, and priorities to incorporate into the overall plan. An example populated interactive web site that has been created for the Downtown Boise Implementation Plan can be viewed at <http://map.project.kittelson.com/dbip> where you can see the number and type of com-

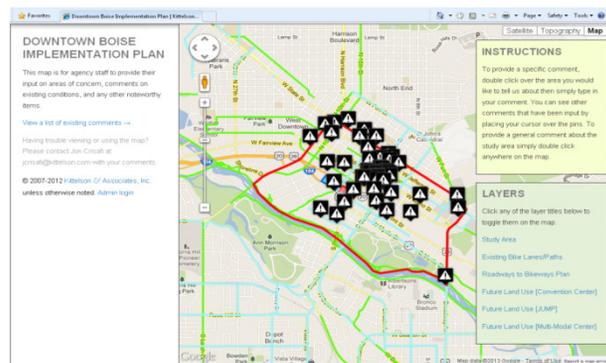
ments we are able to obtain with this low cost, high impact strategy.

We have already created a draft INCOG interactive map, and you can provide us your comments now: http://maps.kittelson.com/INCOG_BikePed.

11. As a client, one expectation INCOG will have is to have the consultant be the “face” of the project to the public. Describe your team’s experience communicating specific project details to the media and local government officials and how you expect to manage that process.

Our detailed discussion on public involvement strategies above shows example of how we have experience in crafting the “face” of a project for outreach to the public, media, and elected decision makers. The KAI Team, and project manager Sonia Daleiden, is particularly well respected for project community involvement, including public involvement strategies; planning and facilitating public workshops and presentations; and leading stakeholder discussions with key parties and public officials. We recognizes that key to developing a community-supported, successful project is early, consistent participation of neighboring communities and businesses and the ability to clearly communicate engineering data and technical information to affected parties.

Through our extensive experience in efforts similar to the INCOG Bicycle/Pedestrian Master Plan, we have come to see that the best approach to establishing the “face” of the project is to invest our efforts in developing local champions who can serve in that role both during and after the Master Planning process. As experts primarily from outside of the area, we provide the experience, knowledge and objectivity to drive the process and push regional decisions through innovation where appropriate. There also may be situations were having an independent “outside” voice is essential to the successful communication of ideas or in building consensus on an issue. However, we have also found through experience that it is essential to have a locally invested “face” or “faces” for the project who carry it through the project and, most importantly, carry it forward after the effort of the consultant’s contract is over. Our outreach efforts



will ensure that a series of local champions are established who are invested in the outcomes of the Master Plan process and who are committed to carrying the recommendations and implementation strategies forward after the planning stage is complete. These champions can and should be established on all levels (technical staff, community members, bicycle and pedestrian advocates, business and economic development advocates, and elected officials). Once the local champions are engaged, we then work side-by-side with them on communication strategies and provide the supporting materials (newsletters, messaging presentations, talking points) to make them successful.



Example Project Newsletter for Communication

12. How has your team integrated public transit into previous bicycle/pedestrian planning efforts?

Our philosophy toward integrated transportation is based on the premise that healthy, sustainable communities are recognized for their fully integrated land use transportation system. Said communities have transportation systems that are safe, efficient, seamless, interconnected, and multimodal. Their transportation systems provide competitive options across modes and their land use systems are arranged to provide mixes of uses that minimize trip length. Travelers are therefore provided with options for when to travel, where to go, what route to take, and what modes to use. Further, the transportation system is arranged in a manner that limits or avoids one mode from inhibiting the safe and efficient use of another. More specifically, the transit system is seam-

lessly connected to the active transportation modes (walking and biking) and efficiently works to extend the reach of these modes.

The KAI team works at multiple scales (statewide, regional, local, subarea, and corridor) to produce integrated transit and active transportation systems.

Corridors

Two examples are worth noting. On North Williams Avenue in Portland, Oregon (KAI’s headquarter office), existing transit service was impeding efficient bicycle operations and raising safety concerns due to the crisscrossing effect of bus service and heavily used bike lanes on this urban corridor. Part of the solution included special detection at the signalized intersections, enabling a leapfrog effect of transit and bicycles to reduce conflicts and improve operational efficiencies for both modes. On Colonial Drive (SR-50) in Orlando, Florida, a constrained corridor, the challenge was to appropriately reallocate existing right-of-way to provide a complete street that connects three cities in the region. Adapting cross-sectional treatments to the unique character of each segment, while providing safe and logical route continuity for cyclists and transit operators, produced award-winning solutions.

Subareas

In Baltimore, Maryland; Portland, Oregon; and St. Petersburg, Florida, streetcar planning introduced a new transit mode and presented the challenge of how to integrate it with existing pedestrian and bicycle facilities. In each case, the KAI team identified bicycle facility enhancements to ensure efficient parallel routes and effective connections, including on-board accommodation of bikes and bike racks/lockers at each stop. This included locating streetcar stops on heavily used crossing bike/pedestrian routes and sometimes relocating bike routes to cross at or near new streetcar stops. Pedestrian quality of service procedures were used to identify enhancements that closed gaps, widened inadequate facilities, and provided enhancements to the walking environment.

Local & Regional & Statewide

The KAI team has prepared scores of long-range, multimodal transportation system plans for municipalities, counties, metropolitan planning organizations, and states around the country. Each plan has succeeded by ensuring that the following principles are achieved: 1) complete a pervasive system of pedestrian facilities that is safe, convenient, attractive, redundant, and directly connects to transit; 2) create a network of bicycle facilities that is tailored to the needs of users, connects key origins and destinations, safe for all user-types, directly connects to transit, and promotes bicycle use; 3) route and operate the transit system to be competitive with auto (e.g. personal cost, travel time) and serve as a logical extension of pedestrian and bicycle trips; and 4) design, operate, and maintain roadway and freight systems to operate safely, efficiently, and effectively while complementing the active transportation modes.

Regional and statewide plans demand the additional effort of coordination and collaboration among multiple agencies (including transit providers). We work very closely (as extensions of staff and trusted advisors) to understand the local vision, context, and jurisdictional capability. Policies are formulated that promote transit and active transportation system development and route continuity while allowing adaptation to local needs. Opportunities to leverage local funding and political support to secure regional, state, and federal funding are identified and optimized. Finally, measurable outcomes are established and supported with monitoring programs to prove the value of initial investments and ensure that subsequent decisions and investments follow.

With each planning effort, we pay particular attention to the types of users, their needs and capabilities, and the range of trip purposes that must be served. This is done in the context of existing land uses and the future plans of each community to evolve, physically and demographically. Outcomes of this approach include a far more balanced transportation system with greater resiliency and adaptability, incog coordination among partnering agencies, community buy-in that inspires implementation, strategic investments with high returns, and inherently healthy and more sustainable practices.

13. Give examples of projects for which this team has recommended bicycle-oriented roadway treatments that were implemented after planning was completed.

KAI has completed projects across the country with significant bicycle and pedestrian improvement components. The following is a summary list of the projects including location and implemented improvements.

- Portland Bikeways Project (Portland, OR): six project locations implementing road diets to restripe for bike lanes, signal timing coordination for pedestrian/bicycle comfort, and existing bike lane relocation
- Division Streetscape Project (Portland, OR): pedestrian crossing enhancements and traffic lane reductions, signal retiming to benefit cyclists and pedestrians, and strategically located on-street bicycle parking corrals
- PGE Park Transportation Management Plan (Portland, OR): Implemented strategies to increase bicycle trips to the stadium, including bike route and parking enhancements
- Far Northeast Livability Study (Washington, DC): Prepared construction plans for bicycle enhancement features

- Rosa Parks Boulevard at I-5 Signal (Portland, OR): Restripe to add bicycle lanes and bicycle signals



Bike Signal at Rosa Parks Blvd

- SE 122nd Avenue/SE Bush Street HAWK Signal (Portland, OR): Installed a pedestrian hybrid beacon
- Spokane Valley Signal Improvements (Spokane Valley, WA): Road diet to reduce auto travel lanes and add bicycle lanes and improve pedestrian crossings

- Portland to Milwaukie Light Rail Preliminary Design (Portland, OR): Improved signals for pedestrian and bicycle safety and comfort
- Bicycle Pavement Marking Design Project (Raleigh, NC): currently under design, project will implement 50 miles of pavement restriping to accommodate bicycle improvements
- Veterans Drive Signal and Roundabout (Hillsboro, OR): Designed a cycle track and sidewalk, as well as pedestrian-friendly roundabout



Cycle Track at Veterans Drive

- Walker Road Mid-block Crossing (Tualatin, OR): mid-block crossing with flashing beacon
- OR 213/I-205 Redland Road Crossing (Oregon City, OR): Award-winning grade separated interchange project that also featured adding bicycle lanes to side streets

14. Based on your experience, describe what the pedestrian element of the plan would address. Would the plan be infrastructure or policy oriented? Or both?

It is not possible for the Master Plan to anticipate and solve all of the needs and desires for pedestrian travel with such certainty that it wholly becomes an implementation or infrastructure plan. Both components are essential to a master plan that spans multiple jurisdictions, covers an extended period of time and results in consistent, and sustained implementation. Adaptability is necessary, in the form of policies, guidelines, and best-

practice examples, to ensure the master plan has lasting value and the ability to productively guide on-going decision-making by partnering agencies.

The strategic nature of the master plan is in three parts. First, the plan describes the system of facilities and amenities to be provided in sufficient detail to understand what exists, what is desired, how it can be developed, and what to monitor in order to confirm steady progress toward the desired outcomes. Second, the plan establishes the common ways in which partner agencies will provide the facilities and the range of acceptable options that could be pursued without further collaboration. Finally, the plan contains an initial implementation plan (a set of agreed upon improvements), supported by decision-makers and stakeholders, with pricing, sources of funding, and timeframes for completion. Together these elements solidify agreement with action, reinforce subsequent action with proof of performance, and promote adaptability and continued collaboration.

15. Has your team worked with policy-related issues, such as block length on previous plans? Describe how block length and connectivity might be addressed in the plan.

Block length, intersection density, and block perimeter are examples of policy tools in use today to aid communities in providing a well-used pedestrian system. Research (some conducted by KAI team members) has found correlations between the propensity to walk and these features. Such tools are particularly effective in newly developing areas, where streets and blocks are being formed for the first time. Retooling built areas to be more conducive to walking generally depends on other tools, such as sidewalk width, various pedestrian amenities (e.g. shade, shelter, and benches), speed and volume of adjacent street traffic, and separation of walkway from moving vehicles.

The Master Plan can be equipped with guidelines and best-practice examples of how these tools work, when they can be most effective, and what limitations they may present. Such policy tools can be integrated with planning and analytical tools (such as the multimodal analysis procedures of the HCM, the Multimodal Level of Service Tool, and the *Transit Capacity and Quality of Ser-*

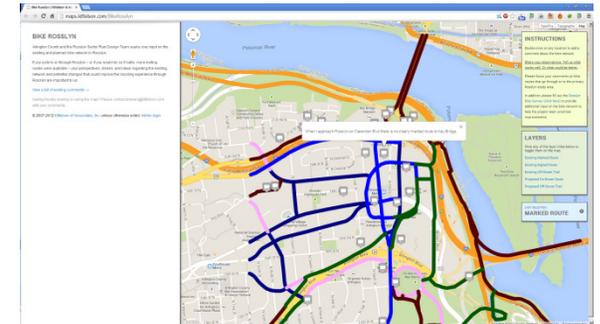
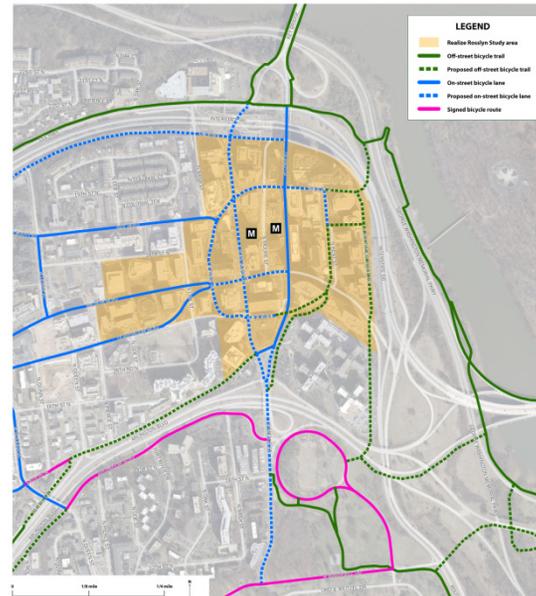
vice, all developed by KAI) to create objective guidelines that are adaptable to varying circumstances throughout the Tulsa region. Examples of our work with these policy tools include the recently published NACTO *Urban Bikeway Design Guide*, the City of Philadelphia Complete Streets Handbook, and the Washington County (Oregon) Bicycle Design Toolkit.

16. How has your team used visual aids (photographic renderings, maps, etc.) to illustrate to elected officials and the public the proposed projects of bicycle/pedestrian master plans?

KAI's engineers and planners are well versed in providing graphics and visual aids that are clear, concise, and easily understandable by individuals and groups with a technical and non-technical background. The engineers and planners are supported by KAI's internal Creative Services Group (CSG), comprised of a team of graphic designers, technical editors, and marketing professionals. Collaborating across offices, the CSG provides a wide range of marketing and graphic design services, including proposal development, custom report layout and formatting; technical, developmental and copy editing; 3D and traditional rendering; web development; custom-designed logos, brochures, and advertisements; and much more. Collectively, the CSG offers proficiency in the entire Adobe Creative Suite, including InDesign, Photoshop, and Illustrator, as well as other design software. This enables us to create impactful visual design ele-

ments that enhance readability and visual appeal of our reports, bolster public involvement materials, and ensure that all deliverables developed by KAI are of the highest quality.

BICYCLE FACILITIES IN AND AROUND ROSSLYN

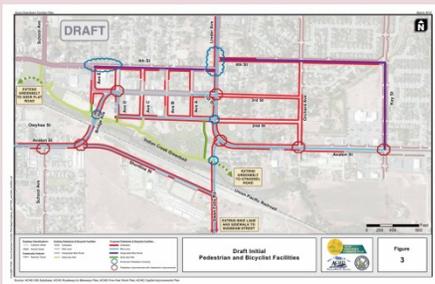


COMMENTS FOR "BIKE ROSSLYN"

- 1. Added June 06 2013
This connection needs to be two way all the way to Pentagon Metro.
- 2. Added June 06 2013
Need information on rules for biking through Fort Myer. I also understand that Wright Gate hours have been cut.
- 3. Added June 05 2013
does this path go through the cemetery / base?
- 4. Added June 05 2013
Need a better bike connection from Meade to Arlington Blvd side road over to courthouse area.

Draft Pedestrian and Bicycle Network

The pedestrian and bicycle network was developed based on public input and compatibility with the two corridor concepts.



Pedestrian & Bicycle Treatments – What Have We Heard?

Key Themes from Comments
We received more than 150 comments via the web site or e-mail. Thank You!

- Provide bicycle and pedestrian paths along Anston Street and Linder Avenue to improve connectivity between the areas inside and outside of downtown.
- Improve intersections through realignment or construction of roundabouts.
 - Linder Avenue/3rd Street/Main Street/3rd Street
 - Swan Falls Road/Anston Street
 - Bridge Avenue/Anston Street/Shortline Street
 - Avenue Conference Bridge/Anston Street
- Construct a railroad overpass and new bridge crossing. Potential locations include Indian Creek at Swan Falls Road, Bridge Avenue, or via an Anston Street extension.
- Improve the Key Street/Anston Street intersection with a traffic signal or enhanced pedestrian crossing.
- Extend Greenball to the west (near Flat Road) and to the east (Swan Falls Road).
- Provide enhanced pedestrian crossings on 4th Street for the library, at the intersection of 4th Street and Linder Avenue, and at the intersection of 2nd Street and Linder Avenue.

