Kingdom of the Netherlands

Report ThinkBike Workshop

A co-creative work session with Dutch and local experts in Chattanooga

September 23rd & 24th, 2013

Sponsored by:

Royal Netherlands Embassy, Washington, DC,
City of Chattanooga
With generous support from the Benwood Foundation and Friends of Outdoor Chattanooga

In co-operation with

Dutch Cycling Embassy

DUTCH CYCLING EMBASSY

Friends of Outdoor Chattanooga
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Think Bike Workshop in Chattanooga September 23-24, 2013

1 Introduction

After successful “ThinkBike Workshops” in 10 other US cities in 2010, 2011 and 2012 the Royal Netherlands Embassy in Washington, DC has invited the Dutch Cycling Embassy to conduct another series of ThinkBike workshops in two cities in 2013. The first of these workshops was in Chattanooga on September 23rd and 24th 2013.

ThinkBike workshops bring together Dutch cycling experts, local politicians, planners, advocates, engineers and business people in each city to plan and discuss how it can become more cycling-friendly by applying elements of the Dutch approach. Teams consisting of Dutch experts and a mix of local experts convene for two days during which they will survey the cities by bicycle and discuss in workshop format how streets, intersections and whole neighborhoods can be improved to create better conditions for bicycle use. The format allows to discuss all relevant aspects of cycling-related policies of the concerning city. The workshops consist of a kick-off session, open to the general public, followed by the workshops behind closed doors and then concluded with a closing session, again open to the public, where the findings and recommendations of the workshop sessions will be presented by the teams.

The Chattanooga workshop was a collaboration between the City of Chattanooga, Dutch Cycling Embassy, and the Royal Netherlands Embassy, with generous support from the Benwood Foundation and Friends of Outdoor Chattanooga.

The problem areas that were chosen to work on were:
Study Area 1: Frazier Avenue/Cherokee Boulevard Commercial Corridor on the North Shore and
Study Area 2: Virginia Avenue/Beulah Avenue Residential Corridor

A more detailed explanation of the study areas is given in chapter 4.

Objectives of workshop

- Exchange ideas on the role of cycling and related policies
- Reflect on objectives of Chattanooga's cycling policies
- Explore applicability of Dutch concepts and designs in Chattanooga in an existing situation
- Propose an appropriate mix of interventions and policies (based on both US and Dutch experiences) to strengthen the position of cycling in Chattanooga

Short overview of the workshop sessions

Prologue

On Sunday 22nd of September, the Chattanoogan hosts showed the Dutch experts some highlights of the city. After a Facebook invitation about 20 Chattanoogan citizens showed up to join this bicycle tour. This tour went, amongst others along the shared-use greenways at the Tennessee Riverpark, which extends from downtown to Chickamauga Dam.

Opening session

Monday morning the opening session was chaired by Blythe Bailey, the Administrator of the new Transportation Department for the City of Chattanooga and the opening address was given by Mayor Andy Berke. He stressed the reputation of Chattanooga as an outdoor city and he doesn't want to be blamed for spoiling that reputation. Cycling is an obvious ingredient of that outdoor quality of Chattanooga. Therefore he welcomed this ThinkBike workshop as an opportunity to enhance the quality of Chattanooga.

Then Tom Godefrooij of the Dutch Cycling Embassy gave a comprehensive overview of the Dutch cycling culture: some statistics about use and related policy development and the Dutch practice of intermodality (combined use of bicycle and public transport). After that Dick van Veen explained the Dutch planning and design principles and the principles of 'sustainable road safety' (see chapter 2).

Small group work sessions
After the opening session the two teams started to work on their assignments. They discussed the nature of the problems, explored the study areas by bicycle and brainstormed and discussed possible solutions, and subsequently elaborated the assignment into

- Street plans showing major choices
- Conceptual designs of cross sections
- Visual impressions of how the public space will look
- Reference examples
- Argumentation for choices made

On 24th of September, representatives of both teams discussed the marketing and communication aspects in order to get public support for the proposals resulting from this workshop.

Closing session
The closing session was held at the public library in Downtown Chattanooga. Both teams presented their problem analysis and solutions distinguishing between the short term ('now' solutions) and the long term ('wow' solutions). Subsequently they answered a number of questions from the audience. The closing session attracted about 150 interested people.

In the following chapters we will give background information about the cycling culture of the Netherlands (chapter 2), and a description of the current state of affairs with regard to cycling in Chattanooga (chapter 3). Subsequently chapter 4 will report the findings and recommendations of the two workshop teams.

2 Cycling in The Netherlands

2.1 Short introduction

From the perspective of other countries all Dutch cities are cycling cities (although according to Dutch standards some cities like The Hague and Rotterdam are looked upon as mediocre). They all have qualities that make bicycling so prevalent, and consequently they all enjoy the related co-benefits with regard to health, livability, environment and the local economy.

27% of all trips are made by bicycle and 40% of all trips shorter than 5 km are by bicycle. 2 cities (Zwolle and Groningen) have reached the 50% mark in trip share for the bicycle. The Netherlands is the only country in the world with more bicycles (18 million) than inhabitants (16.5 million). Of course the moderate (mostly mild) weather and the flat surface contribute to the bike-ability of the Netherlands.

Cycling in the Netherlands is a quite common mainstream mode of transport, used by all ages and both by men and women (women actually bicycle more often than men). Boys and girls between 12 and 16 bicycle 6.5 km per day on average. The bicycle is used for all purposes (25% of all commuter trips are by bicycle and around 70% of the trips to school). Cycling has an excellent image in the Netherlands and is so common that nobody considers himself a cyclist any more than anyone considers himself a tooth brusher: everyone does it.

The Netherlands has the lowest use of bicycle helmets in the world: less than 0.5% of the cyclists wear helmets and we are often asked: why? First of all we prefer to promote active safety (prevention of accidents) rather than passive safety (softening the outcome of accidents). Thereupon we know that enforcing bicycle helmets or even the promotion of helmet use has a discouraging effect on bicycle use. After all the Netherlands is despite (or thanks to) the low helmet use the safest cycling country in the world with less than 10 fatalities per billion bicycled kilometers (Denmark being second with around 20 fatalities per billion bicycled kilometers). Conclusion : the alleged advantages of helmet use are largely outweighed by the disadvantages of the discouraging effect of enforcing helmet use.

2.2 Philosophy: Dutch cycling policies

Dutch bicycle policy has two cornerstones:

1. Dutch traffic and transport planners take cycling seriously as a fully-fledged mode of transport;
2. Dutch urban transport policies are aiming at the optimal mix of transport modes to meet the need for travel of individuals on the one hand and the best overall result for society on the other hand. Dutch municipalities try to utilize the strengths of each mode of transport, including cycling; that is promoting the most appropriate mode of transport for the type of trip being made.

When it comes to the *promotion* of bicycle use it is important to bear the following in mind:

1. People bicycle because it is practical and convenient for them, and it is fun to do so. They don't bicycle because of all kinds of societal goals like the environment, however important these may be for decision makers! Therefore it cannot be stressed enough what the benefits are of cycling for the actual bicycle user: it is fun, practical, enjoyable, cheap, healthy and it is outdoors.
2. Perceived safety is at least as important for successful promotion of bicycle use as the factual safety. If people feel endangered, they won't bicycle (and thus they won't enjoy the fun of cycling either). People appear to have an outspoken preference for the option of undisturbed cycling without the need of being constantly alert for (the dangers of) motor traffic. Hence, the Dutch emphasize segregated cycling facilities along busy arterials and the disentanglement of car traffic and bicycle traffic.

2.3 Dutch design principles

- Functional road design is based on road classification according to the principles of sustainable road safety. In principle we distinguish 3 road categories: *through roads* with a flow function, *distributor roads* with the function to open up areas, and *access roads* with a residential or habitat function.
- Complementary principles for integration and segregation of modes: *segregation* in case of high volumes and high speeds of motorized traffic; in cases where segregation is undesirable or impossible: traffic calming, i.e. decreasing speed and volumes.
- Taking the cyclist's characteristics and limitations as a starting point.
- Application of the five main requirements for cycling infrastructure: *coherence*, *directness*, *safety*, *comfort* and *attractiveness*.

Solutions that may follow from the application of these design principles could be:

- Cycle paths are recognizable by a coloured (reddish) asphalt;
- At intersections cycling facilities are continuous, and whenever feasible cyclists get right of way;
- Bicycle boxes can be applied at some types of intersections so as to make sure that cyclists won't be cut off by right turning cars;
- In case of car parking along the road: positioning of the cycling facility on the right hand side of the parking lane instead of on the left hand side to minimize the number of potential conflicts ('dooring')

In general we can observe that over the past four decades the Netherlands has seen a re-allocation of urban road space in favor of cyclists and pedestrians. Whenever appropriate, space for motorized traffic is confined and traffic calming measures are being applied.

2.4 Road safety education

At elementary schools in the Netherlands 'traffic education' is part of the curriculum for children at the age of 10. The curriculum consists of educating children traffic rules, road behavior and road safety. As a part of this traffic education children have to pass a 'traffic exam'. For this exam the children have to cycle a specific route, and observers along the route check whether their road behavior is in accordance with the rules. Thus, every Dutch person is confident with the basic principles of cycling and appropriate road behavior as a cyclist.
In addition to this, road authorities pay attention to a good design of school routes and traffic calmed school zones so as to enable children to use the road safely.

2.5 Integration of cycling and public transport

Being the second most important mode of transport in the Netherlands, cycling has also an important role for the functioning of the Dutch public transport system. Public transport in the Netherlands is predominantly being used for interurban trips and the backbone of the public transport system is the railway system. About 40% of the train passengers use bicycles to get to the railway station, and about 15% also use a bicycle to get from the station to their final destination. A number of facilities and services enhance a smooth transfer between the bicycle and the public transport vehicle.

2.6 Bicycle parking

No cycling without bicycle parking. The substantial share of cycling in the urban transport mix is also a challenge to road authorities and other stakeholders to provide sufficient bicycle parking facilities at major attraction points. Over the past 20 year there is a growing attention for high quality bicycle parking facilities. These facilities offer (some) protection against theft, stimulate orderly bicycle parking (thus enhancing the quality of public space) and make bicycle use more attractive as well. A 'quality mark' has been created to assist involved parties to select good quality bicycle parking facilities.

2.7 More information

A broad overview of Cycling in the Netherlands can be found in the generic presentation of Cycling in the Netherlands; the brochure "Cycling in the Netherlands" and "Fietsberaad publication 7. Bicycle policies of the European principals: continuous and integral" (see Reference list for links). Or watch the short film on the site of the Dutch Cycling Embassy: www.dutchcycling.nl.

3 Cycling in Chattanooga

3.1 Current use & safety figures

While bicycling mode share, according to American Community Survey (ACS) data from the U.S. Census for Chattanooga, reports a figure well below 1% of trips, cycling activity has been increasing throughout the city. Bike-on-bus boardings of CARTA, our local transit authority, have documented a steady increase with 2013 up 17% over 2012. The introductions of Bike Chattanooga Bicycle Transit System in July 2012 with a network of 30 stations and 300 bicycles for public use has generated over 32,000 bicycle trips in one year of operation. For Bike Chattanooga trips, no on-street crashes have been reported to date. With current trip volumes, no specific crash patterns have developed that identify specific problem areas for bicyclists.

3.2 Current perceptions

The City of Chattanooga was first recognized as a Bronze level Bicycle Friendly Community by the League of American Bicyclists in 2003 and has maintained that designation to date. In 2012, Bicycling Magazine ranked Chattanooga as number 22 of America's Top 50 Bike-Friendly Cities. Recreational road riding and racing opportunities abound outside of the city centre with quiet country and mountain roadways. Over 100 miles of single track within 10 miles of downtown serve a large mountain biking community as well. Bike Chattanooga Bicycle Transit System was the largest single bike share launch in the United States in 2012. In 2013, Chattanooga hosted the Volkswagen USA Cycling Professional Road & Time Trial National Championships with both national and international media attention.

However, the area is faced with challenges such as a limited and disconnected on-street network and significant geographical challenges, including steep ridges and river crossings.

3.3 Current policies

Chattanooga's first comprehensive bicycle plan was the 2002 Chattanooga Urban Area Bicycle Facilities Master Plan. This document created an inventory of recommended facilities and led to the completion of the North-South Bicycle Corridor, which extends from the Georgia state line to North Chattanooga. This plan was then updated by the 2010 Chattanooga Area Regional Bicycle and Pedestrian Plan, which was developed as part of the 2035 Long Range Transportation Plan. The 2010 plan provided for a primary and secondary bicycle network of 424 miles within the Transportation Planning Organization boundary. The guiding principles of this plan and recommended strategies have been aligned with the TPO's overall transportation goals with the intent to move the region toward a vision which defines the Chattanooga area as: a region of complete streets; a region of active transportation and active living; and a region of sustainable choices.

3.4 Existing facilities & services

The City of Chattanooga currently has 15.1 miles of marked bike lanes and 40.1 miles of roads with sharrows and/or bike signs. On-street facilities are complemented by over 20-miles of shared-use greenways, the most notable being the Tennessee Riverpark, which extends from downtown to Chickamauga Dam.

3.5 Important stakeholders

- CARTA – Chattanooga Area Regional Transit Authority
- Bike Chattanooga – Bike Share
- Outdoor Chattanooga
- Bicycle/Pedestrian Task Force
- Chattanooga-Hamilton County Regional Planning Agency
- Chattanooga-Hamilton County/North Georgia Transportation Planning Organization
- Tennessee Department of Transportation
- Main Street Bike Co-Op
- Local bike shops
- Chattanooga Bicycle Club
- Chattanooga Transportation Department
- Chattanooga City Council
- Benwood Foundation
- Lyndhurst Foundation
- Trust for Public Land
- North Shore Merchants Collective
- St. Elmo Business Association
- Northside/Cherokee Community Association
- Northside Neighborhood Improvement Association

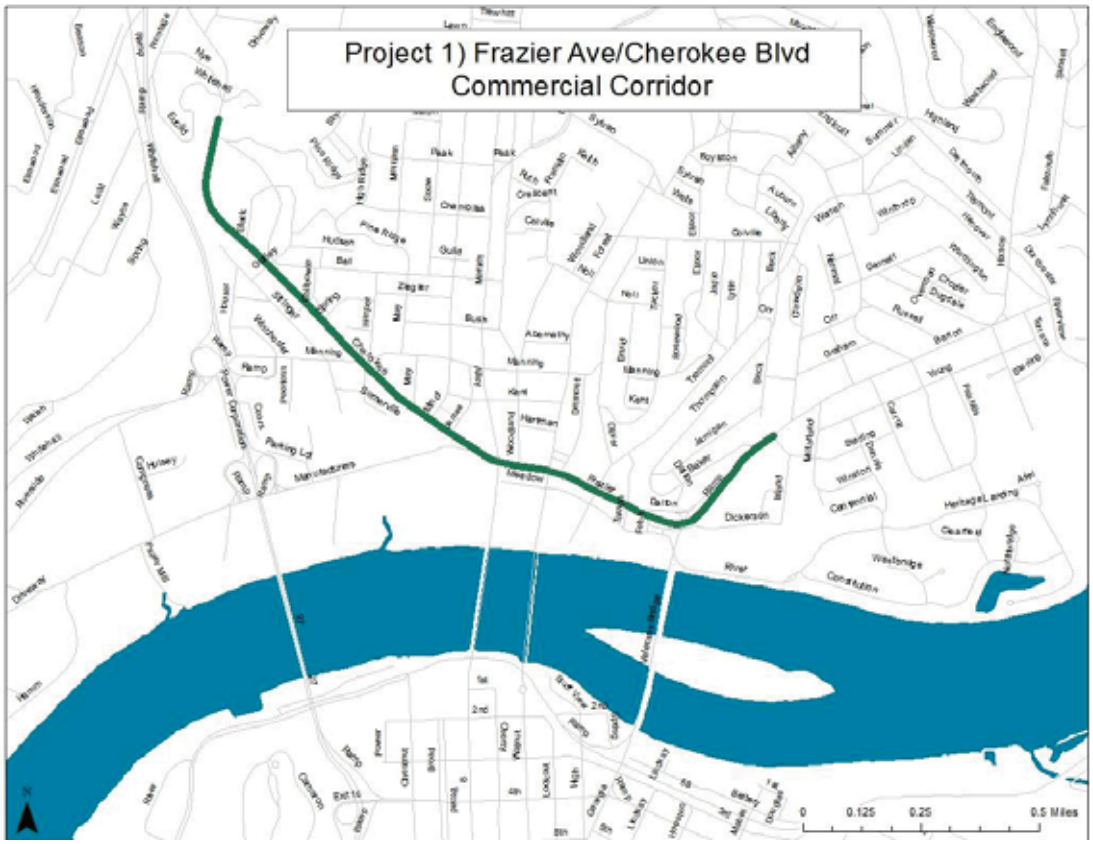
> Hill City Neighborhood Association
> Community Association of Historic St. Elmo

4 The assignments

4.1 Study Area 1: Frazier Avenue/Cherokee Boulevard Commercial Corridor on the North Shore

4.1.1 The assignment

Project 1 is to re-envision a Frazier Ave/Cherokee Blvd corridor that is comfortable for bicyclists of all ages and ability levels. Frazier Avenue and Cherokee Boulevard run through Chattanooga's North Shore commercial district on the north bank of the Tennessee River. The character of development along Frazier Avenue is urban commercial/mixed use with zero setback buildings. In contrast, Cherokee Boulevard is characterized by a more suburban-style commercial development with buildings that have larger setbacks and parking in front. AADT (annual average daily traffic) is 16,812 on Frazier Ave and 12,346 on Cherokee Boulevard. On Frazier the speed limit is 30mph, and on Cherokee it increases from 35 to 40mph. Both streets are classified as urban minor arterials. The North Shore Design Review District, zoning classification, C-7, extends westward up Cherokee in an attempt to encourage future Cherokee Boulevard development to be built with more urban, and therefore pedestrian/bike friendly development. This development pattern is apparent in a mix of new and old architecture between N. Market and W. Manning Streets.



The Walnut Street Bridge, which is exclusively for nonmotorized traffic, is a key bicycle and pedestrian link between the North Shore and Downtown. In fact Chattanooga's bike share system, which launched in 2012, experiences the greatest activity at the stations that are connected by the Walnut Street Bridge. A protected bicycle facility on the Frazier

Ave/Cherokee Blvd corridor would provide a low-stress route extending east and west from the Walnut Street Bridge, providing connections to North Shore businesses, Coolidge and Renaissances parks, Hill City and North Chattanooga neighborhoods, and Stringer's Ridge hiking and biking trails; however, space is limited, and on-street parking is very valuable in this 2-block stretch.

4.1.2 Work session report

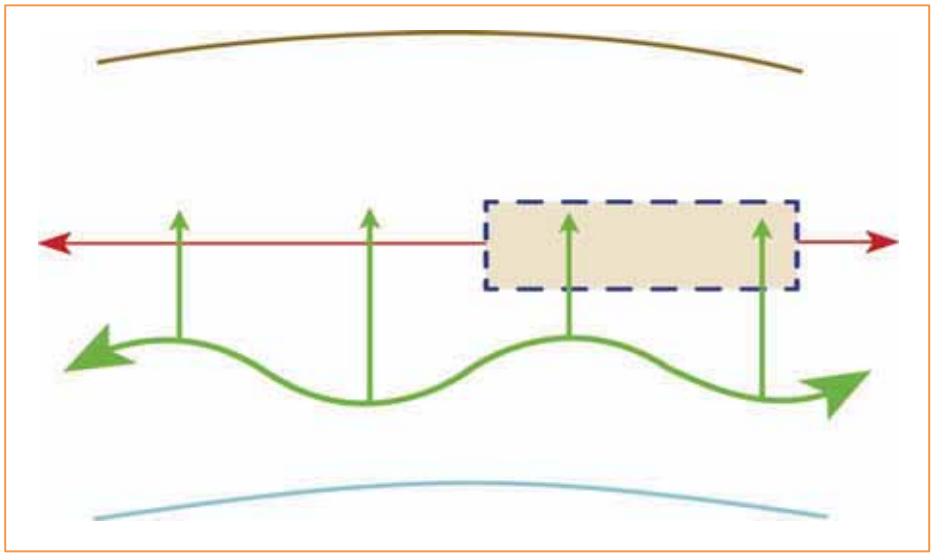
The project group focused on the corridor Frazier Avenue / Cherokee Boulevard. This route is one of the main inbound routes into downtown. At the same time the route is relatively narrow, especially at Frazier Avenue, where a lot of shops and bars are located at the street. Between Frazier and the river there is a park, with several neighborhood streets, parking lots and trails and walks.

After a site visit and problem identification session the main problems were split up in three sections. For each section the main opportunity was described.

	Problems.	Opportunities
Cherokee	> Too narrow for proper separating of car and bike > High speeds > No safe place for cyclists, a lot of driveways and entrances. > The tunnel is too dangerous to cycle.	> Making it a safe street for all traffic modes. > Making the street more green: Cherokee BOULEVARD
Frazier	> Too high speeds. > Difficult intersection, > No safe place for cyclists, > No room for side walk cafe's, > No way to cross the street.	> Making it safe at first, but making it also a nice place to be in. Frazier PLAZA
The riverside area	> Great area, but hard to get to, > A lot of parked cars. > Although potentially an alternative route wayfinding is difficult	> Connecting the different quieter streets through the green landscape as a new GREENWAY

Situation with the different elements Cherokee, Frazier and Riverside area.

The analysis of problems and opportunities resulted in the following conceptual approach: Cherokee will be developed into a boulevard, Frazier should function as a plaza and the riverside area can be developed as a greenway.



Concept: safe street with plaza and greenway.

All three sections where designed with the notion that major change does not happen overnight. That is why a two tier transformation is proposed. In the first phase, the focus is on making it safe with small relatively cheap interventions.

Frazier Avenue

For phase one on Frazier Avenue the parking is removed while a parking route system is put in place. There are so many off street parking facilities, that the space in front of the shops can be used for better purposes than parking. This opens up space for cycle facilities, implemented with green paint to make the lanes recognizable as cycling facilities and flower pots to provide a buffer between bike traffic and auto traffic.

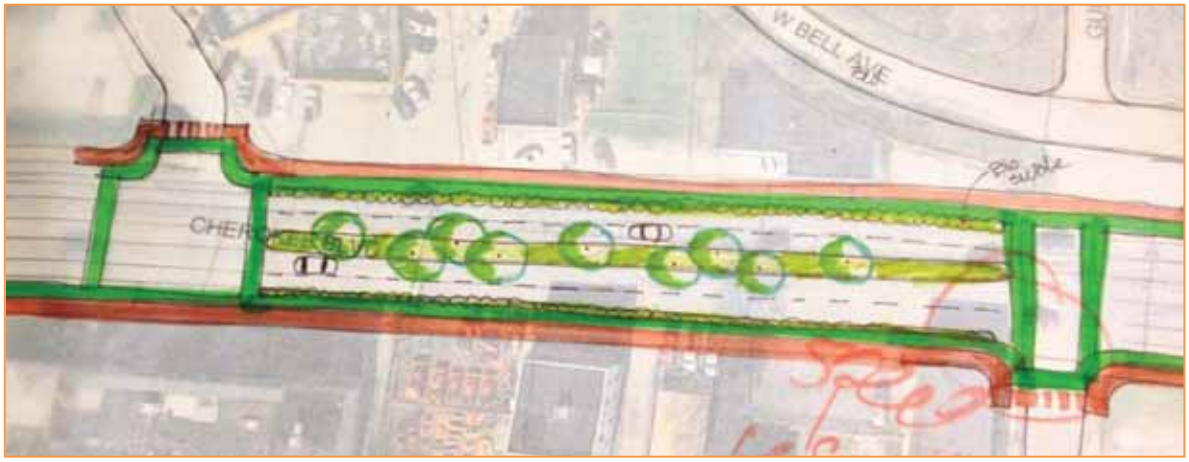
Proposal for Frazier phase 1.

In the long term, Frazier is transforming into a plaza. The asphalt is taken out and replaced by street pavers. The sidewalks are removed; the whole area becomes a sidewalk. Traffic can still go through, but at a very slow pace. Pedestrians cross over from shop to shop, while tables and chairs are prominently present in the space, along with flower pots and bike racks. Frazier is a nice plaza, at the end of Walnut Street Bridge.

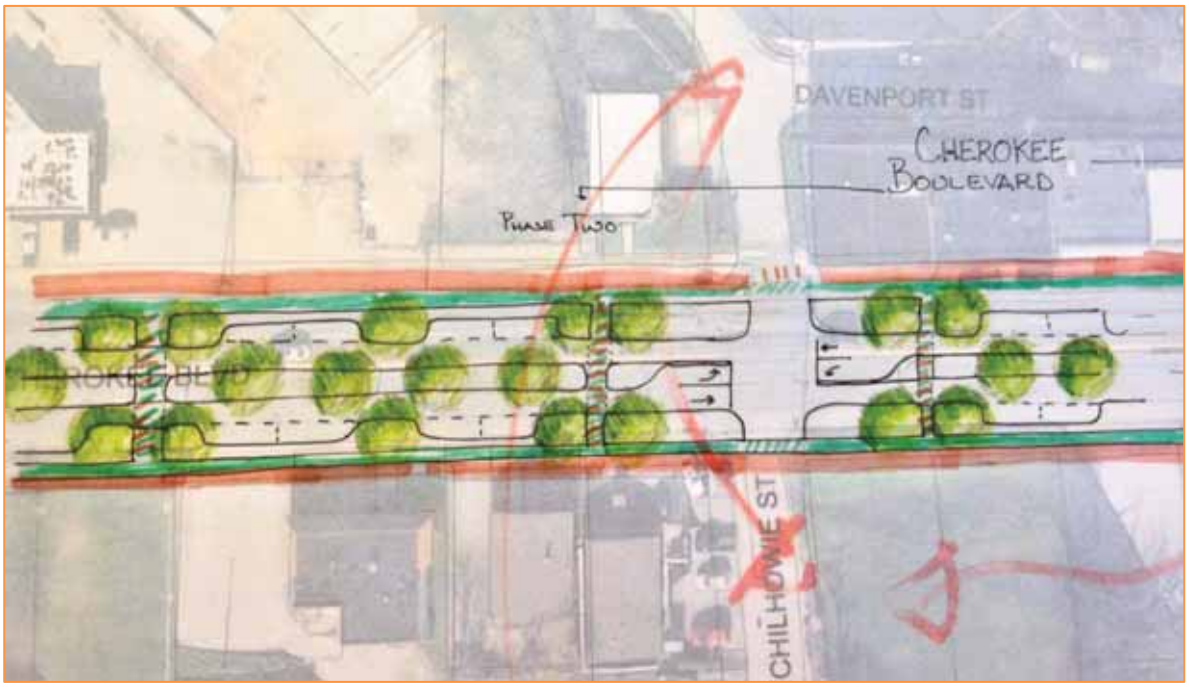
Frazier Avenue as a plaza.

Cherokee Avenue

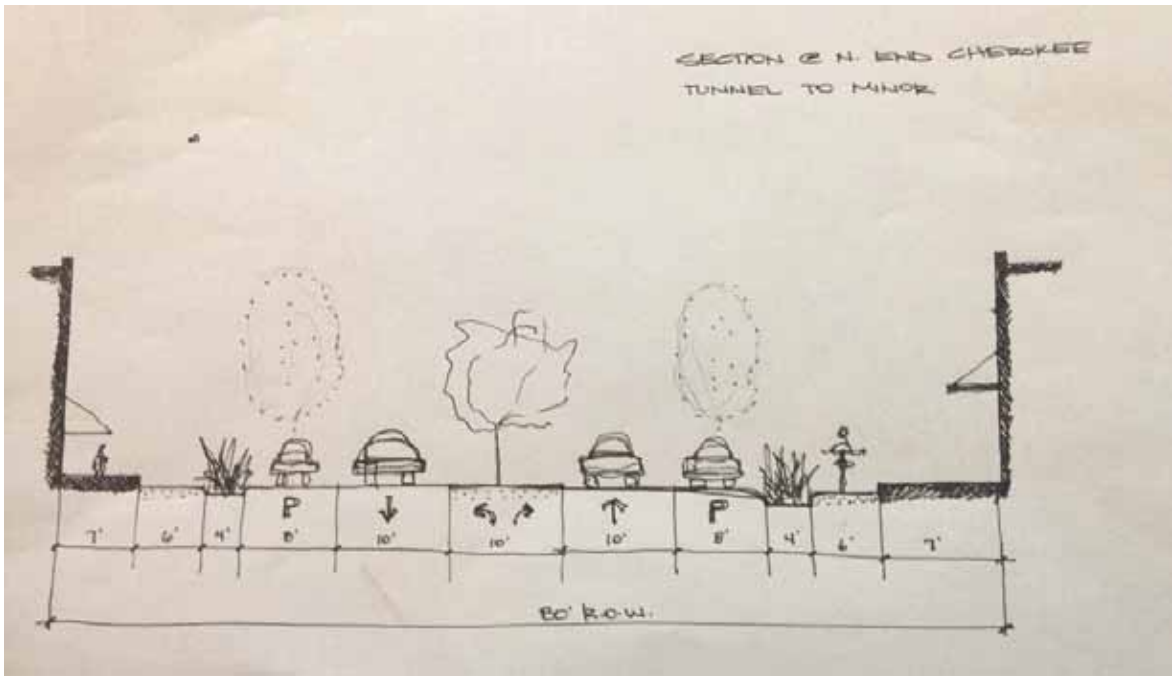
In phase 1 at Cherokee, the road width is limited to a minimum for cars, with green bike lanes at the sides.



In the long term, Cherokee is reduced to one through lane for auto traffic in each direction. Only at the intersections, a left turn buffer lane is put in; furthermore a green central median separates the car directions, and green side medians separate cars from bikes. These medians are planted with trees. Cherokee becomes a real Boulevard.




a view from the cycle path

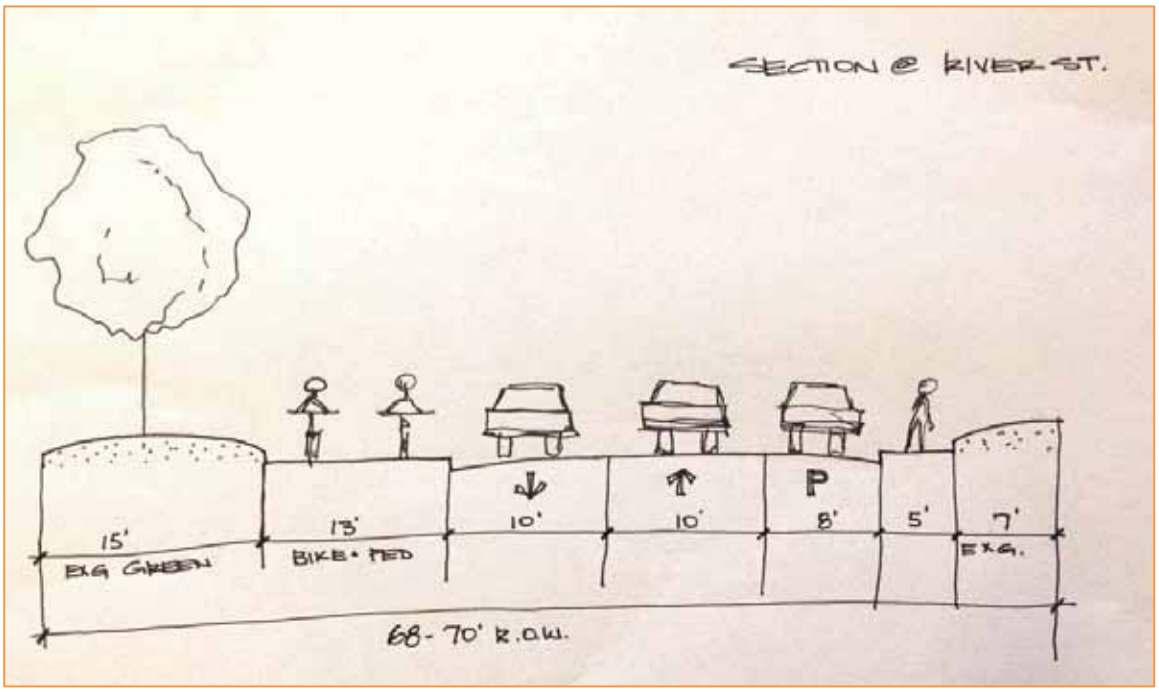

SECTION @ N. END CHEROKEE
TUNNEL TO MINOR
80' R.O.W.

Riverside area

There are still people who are afraid to ride the bigger roads, or who just enjoy the scenery. Therefore, an alternative route is put in place by connecting ‘what is already there’. First an analysis was made how the riverside area is connected to the cycle route network and destinations in the area.

Way finding is solved by the design of a distinctive street scheme, with a two way cycle path on the south side, with trees lining the route. This alternative route also serves as the new Greenway.

And this is what the cross section would look like.



As main conclusion the Frazier / Cherokee team stated that a series of small steps can help to develop the area from short term ('now') solution to a high quality long term ('wow') solution: small steps will lead the transition from the 'now' to the 'wow'.

4.2 Study Area 2: Virginia Avenue/Beulah Avenue Residential Corridor

4.2.1 The assignment

Project 2 is to attract cyclists to the Virginia Ave/Beulah Ave residential corridor and to connect the corridor to the St. Elmo commercial district and proposed Riverwalk off-street path extension. The St. Elmo neighborhood is one of the oldest (early 20th century) suburban developments in Chattanooga. At less than three miles from downtown, the neighborhood is within easy biking distance of the central city. The next extension of the Riverwalk off-street path system will connect the St. Elmo neighborhood to Downtown and the North Shore.

St. Elmo Avenue, which runs north-south through the neighborhood, is a two-lane road with

bike lanes, but the speed and volume of traffic make this road uncomfortable for many cyclists. Virginia and Beulah Avenue provide a low traffic alternative to St. Elmo Avenue. The goal of this project is to highlight the Virginia/Beulah corridor as a priority route for cyclists and connect the route to surrounding facilities and amenities.

A secondary goal of the St. Elmo project is to illustrate a pilot or model approach that could be applied to any of Chattanooga's older neighborhoods, effectively suggesting that low-traffic residential streets and the secondary alley network in these older neighborhoods could be reclaimed. These rights-of-way could function as safe bike routes, through neighborhoods, such as Highland Park, North Chattanooga, Hill City, Alton Park, East Chattanooga, Brainerd, Red Bank, and others.

The challenge of this project is making travel along this corridor more efficient for cyclists, without turning it into an attractive through street for motorists. Cyclists and motorists must stop at 13 intersections on Virginia Avenue. Currently, Virginia Avenue dead ends between 42nd and 41st, forcing cyclists to use the higher traffic Tennessee Avenue to access the bike lanes on 40th St, which provide connections to the Bi-Lo supermarket, library, recreation center, and post office.

4.2.2 Work session report

The group consisted of a mixture of traffic engineers, architects and people from the neighborhood itself. During the bicycle ride on the first morning we found the original assignment, designing a bikeway for a neighborhood-street, actually rather 'easy'. Additionally, the extension of the River Walk project (a dedicated bike/footpath of approximately 20 miles along the Tennessee River) to 1.5 mi from St. Elmo seemed a great opportunity to connect the neighborhood with downtown. Using the Dutch principle of building a complete network of cycling infrastructure we took the extension of the case into consideration.

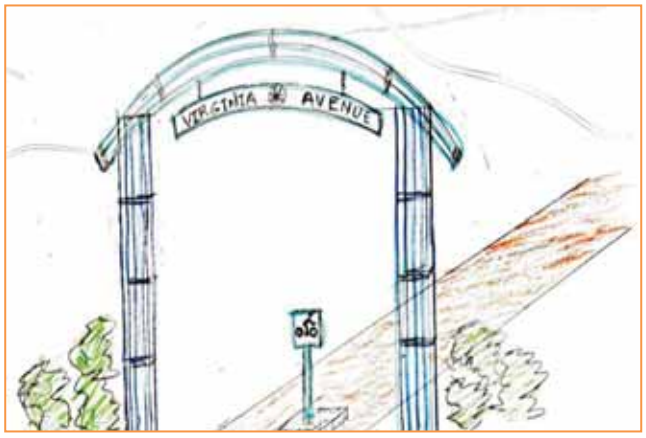
Back at the workshop location we started with a session identifying problems c.q. opportunities for the extended case. Every participant got to fill in 5 'sticky notes', which were placed on a large map of the area. A pattern showed up, with 3 specific cases coming forward:
1. Development of the neighborhood cycling route in St. Elmo (the original assignment)
2. Creating a better neighborhood centre for St. Elmo by promoting Non-Motorized-Transport
3. Redesigning the Cummings Highway / Broad Street / St. Elmo Avenue intersection

Combined, these three cases would connect and provide a coherent connection for cyclists (and pedestrians) between the Riverwalk and St. Elmo and thereby opening up the neighborhood for visitors and possibly enhancing businesses in the area (like the Incline railway)

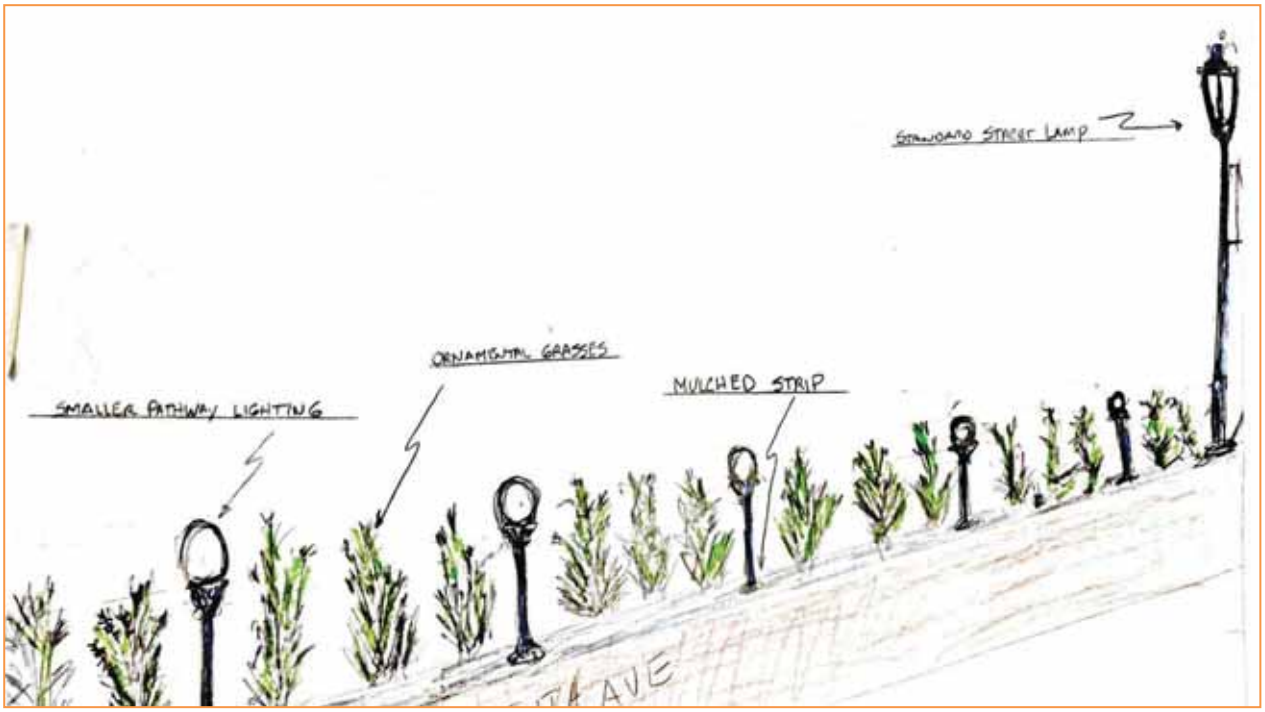
Virginia Avenue and Beulah Avenue

The development of the neighborhood cycling route was actually quite straightforward. The main lack of quality at Virginia Avenue are the intersections where currently cyclists don't have right of way which is detrimental for both the directness and the comfort on this route. Simply shifting the stop sign to the crossing streets is the easiest answer to this shortcoming, but it would be even better to also adapt the vertical alignment of the pavement at the intersections. By using examples of cycling streets in the Netherlands a basic design was made, that could be repeated over the whole neighborhood. The design included table-crossings or 'plateaus', priority for traffic on the bikeway, alternating one-way traffic for cars only to discourage the use of Virginia Avenue for through traffic by cars.

Typical Dutch table crossing



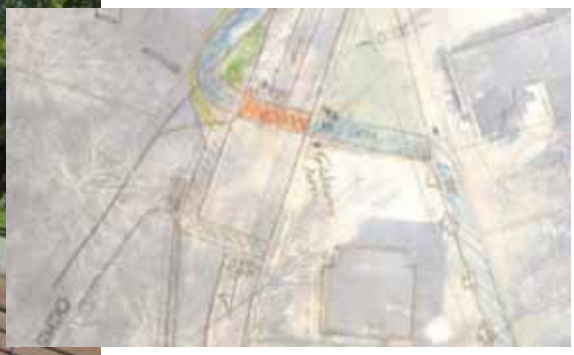
The attractiveness and recognition of the route was emphasized by the Dutch, because of the fact that 'novel' cyclists (former motorists) have a different mental map than those already cycling. They don't know the attractive cycling routes in the city and need to be guided to *find* and *recognize* the cycling routes in the city. Thus, in every case, elements were added to enhance recognition. For the neighborhood a different coloring for the cycling route was proposed with an entrance gate at the start of the cycling route.



For making Virginia Avenue a well-used route the major challenge is to make a good connection with St Elmo center and subsequently with downtown Chattanooga. The most obvious site to make this connection is at St Elmo Avenue between the junctions with Ochs Highway and Tennessee Avenue.

Where currently between 42nd and 41st Virginia Avenue dead ends and crosses a culvert, a simple bridge can make the connection to St Elmo Avenue

The chosen principle for making the crossing was inspired by a similar design in the Netherlands. This is a 'bended out' cycle track at St.Elmo's Avenue to allow cyclists to cross the street at an angle that enables them to see traffic coming from both directions and to position themselves safely while waiting before crossing.



Neighborhood center St Elmo

The current neighborhood centre of St. Elmo looks already very attractive with lots of outdoor activity going on. Unfortunately, St. Elmo Avenue currently serves as a through road which makes cycling and walking an unattractive and risky experience. Crossing the street can only be done at designated intersections and thereby limiting the (social) interaction of the area.

Problems identified were:

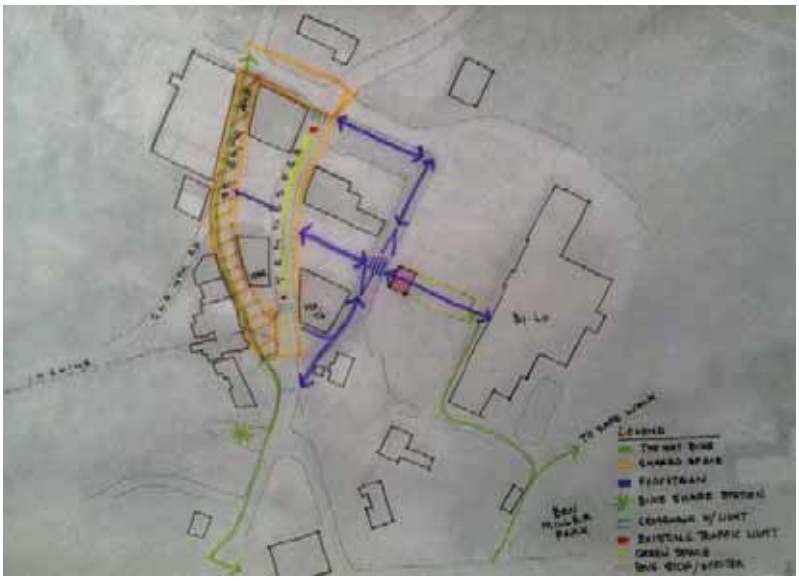
- High volume of pass-through traffic
- Lack of shared space
- Lack of connectivity between business/shop center, grocery plaza, Virginia/Beulah corridor, and surrounding communities
- Underutilized space and missed opportunities
- Lack of connectivity to downtown
- Traffic flow divides the community in half
  - Lack of pedestrian crossing opportunities
  - Difficult to get to Virginia Ave access
  - Perceived lack of pedestrian access to the grocery plaza

The team decided that place making was its major challenge, i.e. creating a stronger sense of place by defining the village core and its connection points. The chosen approach was:

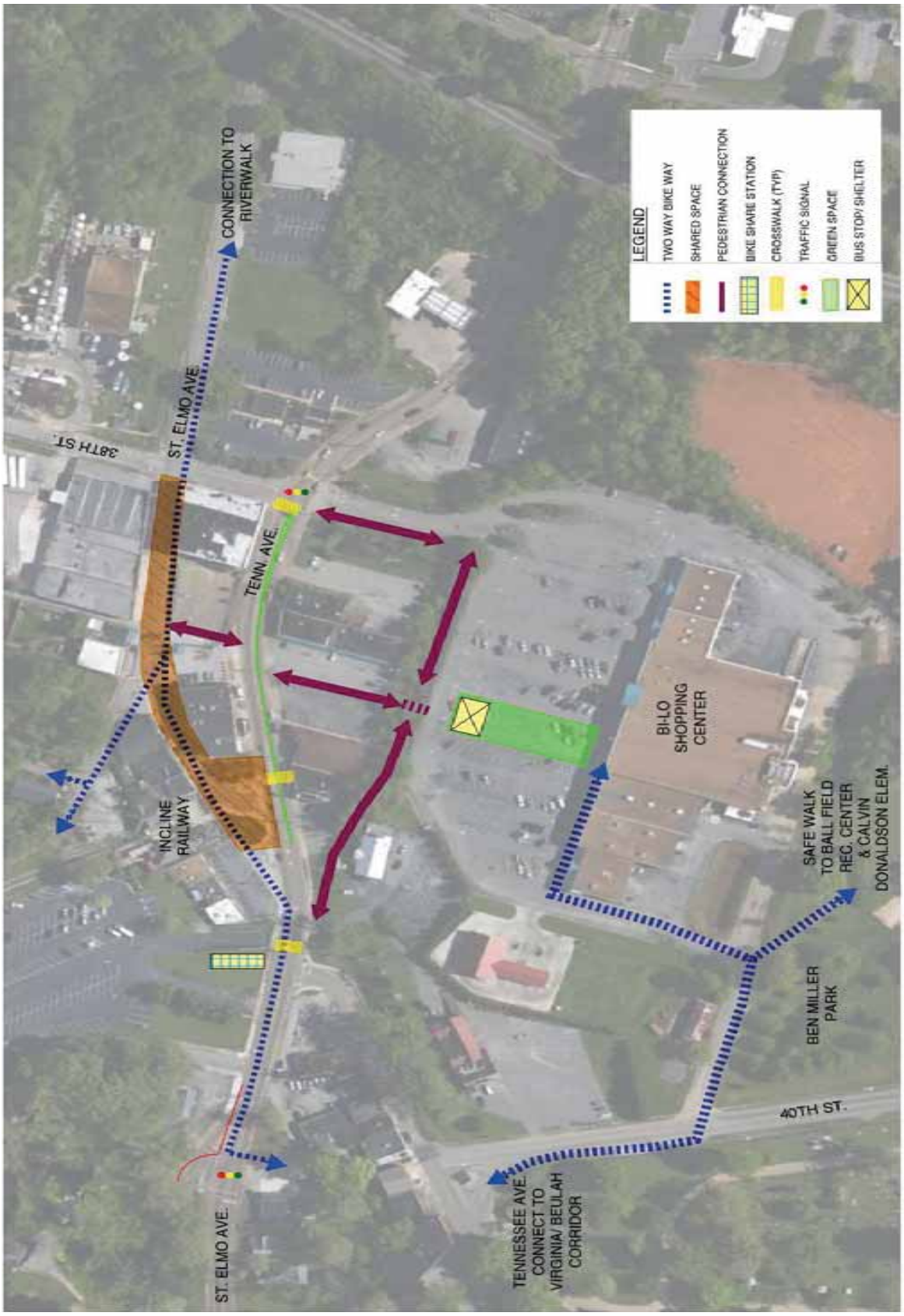
- Create a more vibrant space
- St Elmo Center connect people and activities
- Designate St Elmo as a destination rather than a pass through
- Design a multi modal network for use by commuters, residents, tourists.
- Creating a multi use hub for transit, bikes, shoppers, pedestrians

This resulted in the following conceptual approach:

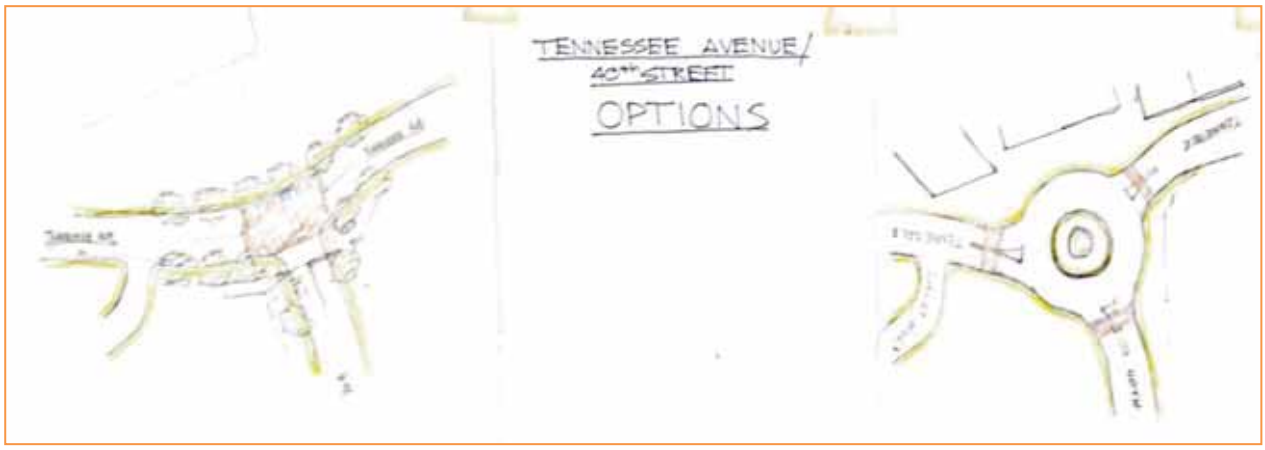
- Slow Down Traffic
- Create Shared Space
- Connect key destinations in Village to surrounding communities, downtown, trail system, and Riverwalk
- Apply principles of 'road hierarchy'



Proposed design:



During the analysis, the principle of road hierarchy was used to determine that Tennessee Avenue should be the main traffic artery and there was enough opportunity to make St Elmo Avenue less important for vehicular traffic. Noted by the Dutch as well was that the speeds of (car) traffic in the area didn't match the function of the area. A redesign of the Ochs Highway / St. Elmo Avenue was proposed with two goals in mind: reducing the speed of car traffic and creating a safe crossing for cyclists and pedestrians. Notable is that the average speed of the cars in the design wasn't significantly lowered, but with a smart design and efficient adjustment of the Ochs Highway traffic light, the throughput of traffic wouldn't be reduced.

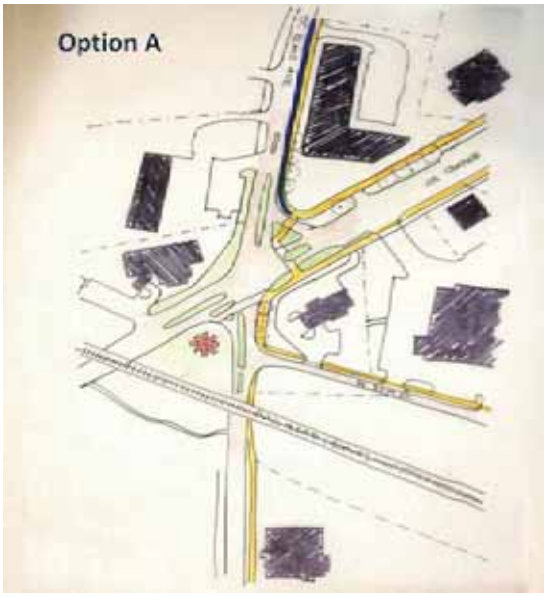


Intersection Cumminngs Highway / Broad Street / St Elmo's Avenue

This intersection is currently very unsafe, not only for motorists but especially for cyclists. Due to the narrowing of Cummings Highway over 300 feet at the exit of the intersection, traffic heading to Cummings Highway is busy with merging on the intersection. Traffic coming down from Cummings Highway on the other hand is speeding up again, after the narrow. The space in this area is also very limited.

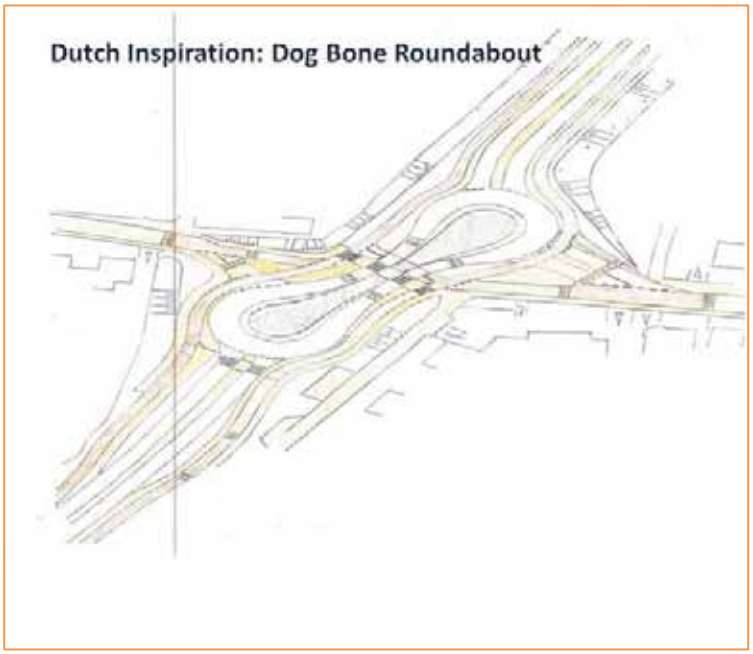
The road authority already had a redesign of the intersection planned with adding a traffic light. While the proposed design is an improvement, the participants in the workshops deemed that it wasn't perfect. Three options were considered:

1. A modification of the existing design. The Dutch pointed out that slip roads to allow free right turns are really dangerous for cyclists and pedestrians. And they also pointed out that some of them were actually unnecessary because an alternative, shorter route was available to access the industrial area at St. Elmo Avenue.

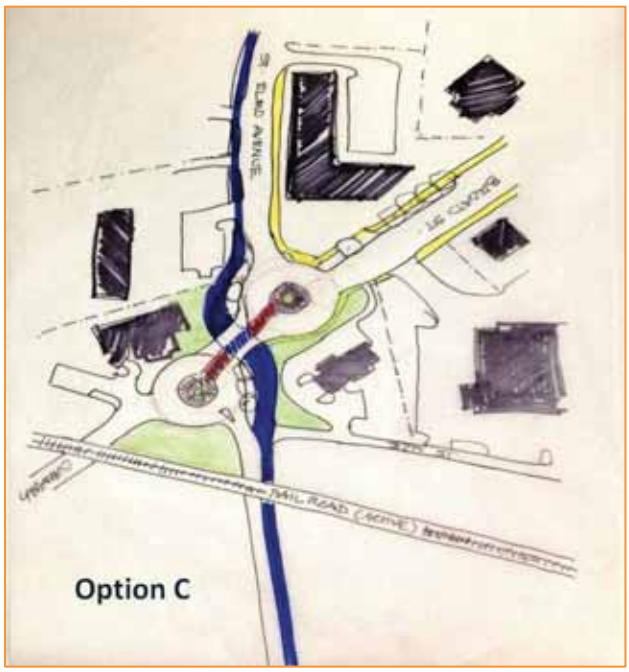


2. A second option that was considered is building a cycling underpass. The team did not elaborate on this option but showed a Dutch example of what this would look like.

3. The third option considered was an oval shaped (or 'dog bone') roundabout with a cyclist crossing in the middle. The design of a regular roundabout would not fit in the location. The design of the oval roundabout was inspired by a similar case in the Netherlands: a main through street with an important cycling route on it. The oval roundabout would reduce the speed of car traffic, making it easier for cyclists to cross the road, but the traffic would be able to continue moving. The lower speeds



allow cyclists to cross safely. There were some concerns about the throughput of the oval roundabout, but in combination with the shared space further down St. Elmo Avenue, most car traffic would cross the oval roundabout in the same direction, thereby reducing congestion.



4.3 Marketing aspects

On Tuesday, representatives of both groups joined to discuss the marketing aspects of the ideas and proposals being developed in both teams. Cycling and cycling projects should become strong brands in Chattanooga. They concluded that it would be best to show that these projects will contribute to wider policy goals and aspirations of Chattanooga and its population. Under the title 'Re-imagine Chattanooga' they presented the projects as contributing to the safety and comfort of Chattanoogans, to 'place making', i.e. nicer road environments, to better connections between (and better access to) areas of origins and destinations for all parts of the population and very much stressing that Chattanooga is 'us', all people of Chattanooga.
The group also referred to the speech of Mayor Berke about the 'outdoor' reputation of Chattanooga. Values connected to this outdoor reputation are: Environment, Affordable, Scenic, Healthy, Engaging and green Community. In the further development of its active transport policies Chattanooga should continuously refer to these values. From these values a number of wider policy goals can be derived that will justify and enhance a stronger position for cycling:

- Chattanooga puts people first
- Chattanooga wants viable transit corridors
- Chattanooga will apply 'green infrastructure principles'
- An identifiable visual system will enhance the coherence and recognition of Chattanooga's cycling route network.

Next steps to be taken:

- Develop 'Southern Urbanism': efficient urban planning combined with the southern relaxed and hospitable way of living
- Changing the (current) balance between people and cars in favor of people
- More efficient use of space. The general impression is that parking space could be used much more efficiently to serve the same amount of cars with less space.
- Upgrading existing infrastructure with regard to its place making qualities.

5 Composition of the teams:

Each team was composed of approximately 15 professionals, including: representatives of city council members, representatives of local foundations, city engineers, traffic engineers, TDOT representatives, planners, architects, landscape architects, local business owners, Bike Task Force representatives, neighborhood association members, representatives of the Safe Routes to School National Partnership, and avid cyclists.

5.1 Cherokee Boulevard / Frazier Avenue team

This team was moderated by Dutch expert Dick van Veen.
Local team members were:
Justin Howell, City Engineering
Ben Taylor, Traffic Engineering
Stacy Morrison, TDOT
Chip Henderson, Council, district 1
Jerry Mitchell, Council, district 2
Justin Tirsun, Planner, Frazier/Cherokee
Jim Johnson, Trust for Public Land
Lori Quillen, Hill City Neighborhood Association
Macon Toledano, Lyndhurst/urban designer
Christy Smith, Safe Routes to School
Matt Brown, Architect
Brandi Hill, Yerbey Concrete Concrete/Architect
Elizabeth Tate, President of North Shore Merchants Collective
Jerry Sterling, North Shore Chamber
Lisa Maragnano, CARTA
Karna Levitt, Landscape Architect

5.2 Virginea Avenue / Beulah avenue team

This team was moderated by Dutch expert Sjors van Duren.
The local team members were:
Jessica Wilson, TDOT (Tuesday only)
Greg Taylor, TDOT
Joda Thongnopnua, Council rep, district 7
Pam Glaser, Planner, Virginia / Beulah
Chris Carson, Bike Task Force
Jeffrey Cross, Cyclist
Bruz Clark, multiple areas of expertise
Lauren Lowery, Economic& Community Development
Joe Martin, Architect / Cyclist
Kristy Huntlley, Benwood Foundation
Paige Wichman, St Elmo Historic Association
Deedee Dubose, Business Owner
Bill Cannon, City Engineering
John Brown, Architect

6 Suggestions for additional sources of information

This chapter contains a detailed overview of web resources suggested to the teams for preparation purposes.

Cycling in the Netherlands

> Brochure “Cycling in the Netherlands”(2009)
http://www.fietsberaad.nl/library/repository/bestanden/CyclingintheNetherlands2009.pdf

- Report Fietsberaad Publication 7: Bicycle policies of the European principals: continuous and integral
  http://www.fietsberaad.nl/index.cfm?lang=nl&repository=Fietsberaad+publication+7+als+dochter+van+de+nederlandse+versie
- Generic Presentation on Cycle Policy and design in the Netherlands
  http://www.fietsberaad.nl/index.cfm?lang=nl&repository=Generic+presentation+Fietsberaad+International
- Amsterdam Bicycles (82 pictures)
  http://www.ski-epic.com/amsterdam_bicycles/
- Video “Amsterdam: The Bicycling Capitol of Europe”
  http://www.youtube.com/watch?v=gk6YxhKH590
- Video “How the Dutch got their cycle paths”
  http://www.youtube.com/watch?v=XuBdf9jYj7o
- Bicycle Dutch: blog with lots of interesting posts, comments and links
  http://bicycledutch.wordpress.com/
- Bicycle Council(governmental expertise centre on bicycle planning)
  http://www.fietsberaad.nl/index.cfm?lang=en
- Dutch Cycling Embassy (also featuring the video “Cycling for everyone”)
  http://www.dutchcycling.nl

General

- Wikipedia about sustainable mobility
  http://en.wikipedia.org/wiki/Sustainable_mobility
- Wikipedia about mobility (utility) cycling
  http://en.wikipedia.org/wiki/Utility_cycling
- A definition of mobility management
  http://www.epomm.eu/index.php?id=2590
- Cycling Rules!
  http://www.cyclingrules.org
- Cycle Chic from Copenhagen
  http://www.copenhagencyclechic.com/
- Website from an Amsterdam bicyclist to inspire others
  http://amsterdamize.com/

7 CVs Dutch Experts

Tom Godefrooij, Dutch Cycling Embassy

Tom Godefrooij (1950) is a sustainable transport specialist. After his graduation in architecture in 1975 he worked a few years as an architect. In 1981 he joined the Dutch Cyclists’ Union to make a publication on traffic calming. Subsequently he became policy director of the Dutch Cyclists’ Union and dealt with virtually all aspects of cycling, ranging from road safety and infrastructure design and policy development to technical standards for vehicles and equipment.
From 1996 to 1999 he was president of the European Cyclists’ Federation (ECF), and in 2000 he was programme director for the international cycling conference Velo Mondial 2000 in Amsterdam.
In 2001 took up office with the Dutch Province of Noord-Brabant to become project manager for the drafting of the Provincial Traffic and Transport Plan. This plan defines the roles of the

various modes of transport in the transport system and provides a framework the transport policies of the municipal governments in the province. The plan was approved in 2006.

From 2006 - 2011 he was employed by Interface of Cycling Expertise (I-CE), being responsible for capacity building activities in the field of cycling-inclusive policy development. In this capacity he worked in India, South Africa, Tanzania, Chile, Peru, Ecuador, Brazil, Colombia, Israel, Turkey and Ghana.

Now he is senior policy advisor at the Dutch Cycling Embassy, a public private body created in 2011 in order to make the Dutch cycling culture better known internationally and to share any relevant cycling-related expertise and experiences.

Dick van Veen, Consultant/Designer @ Mobycon

"What kind of world do we want to live in? How can we as designers make that world a reality?"

Underlying all Dick's work is a belief that design should be used to preserve public space and encourage human interaction in that space. All road users are equal and vulnerable users should be prioritized. As a designer for city planning and traffic engineering, Dick is an expert at creative solutions that fit their context and make use of the space available.

Dick is experienced in creating car and bike parking and bringing traffic types together in harmony through retrofitting streets and developing Shared Space projects for Dutch cities. He works with municipalities and regions in Holland and abroad. Most recently, Dick has been giving design advice to Canadian cities building new bike infrastructure. Internationally, Dick has teaching experience in Canada, the USA, Greece and Finland. Through these design workshops, Dick has helped train city planners and traffic engineers in bicycle planning. Dick has a Master's degree in Architecture and a Master's degree in Civil Engineering with a speciality in Transportation & Planning, both earned from the Technical University in Delft.

Always up for an adventure, Dick keeps active when not at work through skiing, sailing or just riding around town with his daughter on the back of his bike. She is one more reason, he believes so strongly in safe roads.

Links:
LinkedIn: http://nl.linkedin.com/in/dickvanveen
Twitter http://twitter.com/Dickvanveen

Sjors van Duren, Arnhem Nijmegen City Region

Sjors van Duren (1985) is a traffic and spatial planner. He works for the Arnhem Nijmegen City Region, a cooperation between two bigger cities and 18 smaller municipalities, together with about 720.000 inhabitants.

He graduated in 2009 at the Radboud University with a Msc degree in spatial planning, back then focusing on the tendering process for regional public transport, especially

how to gain commitment and involvement from crucial stakeholders with interests in public transport. Before finishing his thesis, Sjors was already employed at the Arnhem Nijmegen City Region and was working with on the project ‘RijnWaalpad’: the first super cycle highway (currently under construction) in the region. The 'RijnWaalpad' will be connecting the cities Arnhem and Nijmegen over a distance of 16km.

In 2009 Sjors coordinated the development of a new cycling policy for the city region, aiming at:

- Development of more super cycle highways;
- Increasing bicycle parking capacity at public transport nodes;
- Cooperation with employers to stimulate employees to use the bicycle instead of the car for commuting.

Since 2009 Sjors coordinates all cycling projects in the city region and is very closely involved in the development of the super cycle highways, starting from the first explorations to suitable routes, to creating political commitment and ending with a marketing campaign aimed at car drivers. Sjors coordinated a number of studies ranging from design questions to cost-benefit analyses. (See also www.Arnhemnijmegencycling.com.)

In the last two years the projects in the Arnhem Nijmegen City Region got some international attention. In Austria, Sri Lanka and Germany presentations were given and delegation from the UK (a delegation from Boris Johnson, Mayor of London and the traffic and transport minister of Scotland) and Germany visited the Arnhem Nijmegen City Region to take a look at the development of the RijnWaalpad.

8 CVs Chattanooga Experts

Cortney Mild

Cortney Mild is a Planner in the Strategic Long Range Planning Division of the Chattanooga-Hamilton County Regional Planning Agency. She recently returned to Chattanooga after completing her Master’s in Community and Regional Planning at the University of Oregon in Eugene. After her first year at UO, Cortney interned with the Dutch transportation consulting firm Goudappel Coffeng. Her research on transferring Dutch methods of promoting bicycle transportation to the US context earned her positions onThinkBike workshop teams in Austin, TX; San Francisco, and Los Angeles, CA. Her honors include Eno Fellow, Oregon

Transportation Research and Education Consortium's Student of the Year, American Institute of Certified Planners' Outstanding UO Planning Student, and Women in Transportation Seminar's Strategic Partner Scholarship.

Philip Pugliese

Philip became Chattanooga's first bicycle coordinator in 2005, working to provide mobility options for its citizens. Actively engaged in bicycle policy and planning since 2002, he also serves on the technical staff of the Chattanooga-Hamilton County-North Georgia Transportation Planning Organization and the Southeast Tennessee Rural Planning Organization. Philip is an active board member of the Association of Pedestrian and Bicycle Professionals, representing this organization on the National Complete Streets Coalition Steering Committee. Through these collaborative efforts, Philip engages the public, non-profits, and local and state government to advance bicycle and pedestrian projects. To further promote research, policy, and practice, Philip developed the Active Living & Transportation Network to leverage private, public, and academic resources in the community. A graduate of Georgia State University, Philip also holds a Master's of Business Administration degree from the University of Tennessee.

Blythe Bailey

Blythe Bailey is the Administrator of the new Transportation Department for the City of Chattanooga. Under his leadership, the new department will plan, design, and implement transportation projects that contribute to strong communities, a growing economy and safer streets, while ensuring the most efficient and effective use of tax payer dollars.

Blythe received his Masters of Architecture at the University of Tennessee in Knoxville after a short career teaching high school math. It's there he began using his bike as the dominant form of transportation, out of necessity and cost. Parking a car on campus was both expensive and inconvenient, and Blythe found that he could get to work more quickly if he rode his bike. During a month long ride across Spain in 2000, Blythe experienced first-hand the joy of biking and walking as a social form of movement. "I found that people are kinder to each other when they are face to face on the street," said Blythe, "and that active transportation benefits the environment, public health, our economy, and can contribute to strong social bonds."

Blythe worked on public space design and policy both for the Nashville Civic Design Center, the Nashville Metropolitan Historical Commission, the Chattanooga Urban Design Studio, and in private practice. As an urban designer for much of his career, especially as a partner with Palmer Built Environments, he practiced design geared to the importance of connection, public space, and the quality of our exterior environments. His experience in private practice focused on large scale design, master planning, public space design, as well as architecture.

Blythe believes our streets are spaces for movement – but also spaces for people and they should accommodate all travel modes safely and efficiently. He also believes in the importance of broad vision being the key to good design, which is durable, efficient, and sustainable.