

# International Sustainable Transportation Engagement Program (I-STEP)

**Summary Report**



**December 2016**

**Source material from the students of I-STEP 2016**

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Texas State University

Center for Research, Public Policy, and Training

## Acknowledgement:

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## I-STEP: Engaging to Innovate

The International Sustainable Transportation Engagement Program (I-STEP) is designed to help communities better utilize innovative sustainable transportation technologies by building a knowledge network between best practice leaders and communities with the desire to innovate. Proven sustainable transportation technologies are in use today in the form of safe, low-speed neighborhood streets, regional streets with separated facilities for walking and bicycling, and well-connected and frequent transit. In the Netherlands, for example, a broad sustainable transportation system has already been tested and deployed on a national scale to increase safety, connect economic resources, and simultaneously lower greenhouse gas emissions.

I-STEP is driven by the desire to engage an underlying question: How can we transfer these sustainable transportation technologies from best practice leaders like the Netherlands to the United States or other countries?

The I-STEP approach focuses on building partnerships between sustainable transportation leaders from multiple countries.

I-STEP began in 2015 as a joint project of the Texas State University Center for Research, Public Policy, and Training, CivilStreet.com, and the University of New Orleans Pedestrian Bicycle Resource Initiative. In the summer of 2015, I-STEP linked U.S.-based transportation professionals with colleagues in the Netherlands and Romania for a 2-week intensive collaboration. Results from our Year One evaluation highlighted the potential and complexity of transferring sustainable transportation best practices between countries. The year one report is available from the Center for Research, Public Policy, and Training at Texas State University.<sup>1</sup>

In 2016, we have continued collaboration with our Romanian colleagues through project follow-up activities and have expanded to include a student program in the Netherlands led by Texas State University. This report provides an overview of the findings from the student program in the Netherlands, and details future I-STEP directions that seek to build broader sustainable transportation knowledge sharing partnerships.

<sup>1</sup> <http://crppt.polisci.txstate.edu/Study-Aboard.html>

# Netherlands Student Program



*Figure 1: Study Team in Zwolle*

In 2016, I-STEP created a student program in the Netherlands. The student program is designed accomplish two goals:

1. Enhance student knowledge of best practices in sustainable transportation practices through experiential learning in the Netherlands and
2. Establish a platform for knowledge sharing through a project-based class experience linked to final report of findings.

Our students spent 2 weeks in the Netherlands engaging city planners, non-profits, academics, advocates, and everyday citizens in conversations about how to build a strong sustainable transportation system. Students were based out of Amsterdam and Rotterdam and made side trips to Zwolle, Kinderdijk, and Delft to explore different dimensions of the Dutch system. Through the course of these dialogues, the students accomplished a series of exercises to help engage transportation stakeholders, build substantive knowledge of the Netherlands system, and collect data on how the system works.

The exercises included:

- ◇ Analysis of place characteristics in a select set of Amsterdam neighborhoods
- ◇ Informal discussions with transportation users in Amsterdam
- ◇ Transportation counts at select locations in Delft
- ◇ Place analysis of these areas in Delft
- ◇ Use of the Street Interview Tool (SIT) in Delft

These varied activities helped provide students with a comprehensive overview of the strengths and challenges of the Netherlands system and helped to prompt dialogue about how these system elements might be transferred back to the U.S. setting. The following is a combination of direct reflections from the students that have been edited, enhanced, and reorganized into a larger narrative for the report. Students listed as authors voluntarily agreed to have their reflections used as part of the larger project. Their hard work, thoughts, and reflections form the backbone of the material below.



# Amsterdam Neighborhood Place Analysis

## Background

Students arrived in Amsterdam to a multi-modal world of bikes, cars, trams, and pedestrians moving in semi-choreographed dance through the city streets. The initial reaction of the students was to perceive this to be the natural order of Amsterdam. After all, Amsterdam is often described as the city of bikes (Jordan 2013).

The first assignment for the students was to help them uncover the history of political activism and long-term transportation change that helped to produce the environment of 2016.

## Transforming Amsterdam into Amsterdam

Amsterdam in the 1970s was a city in the midst of a massive auto-oriented road expansion process. Auto drivers proliferated as roads were expanded through historic neighborhoods and simultaneously bicycle riders started to become fewer and crashes and deaths began to rise. In 1972, for example, approximately 3,300 people had perished on roadways in the Netherlands, and in 1973, 450 children died on Dutch roads (Hembrow 2011).

These deaths resulted in the formation of the Stop de Kindermoord (Hembrow 2011) movement, which aimed to bring awareness to these fatalities and work towards policies that changed the way roads were planned and built. This movement, and others which aimed to change transportation and public policies, were the turning point for the Dutch in reclaiming their streets for all road-users – prioritizing those most vulnerable. This movement was powerful and slowly began to change the system, first through stopping city highway expansion projects and then through a long-term process of altering the street design, speed, and physical separation of users.

Students were tasked with visiting key locations in Amsterdam that had been changed through this activism and reprioritization of road space.

Students visited locations identified in Sustainable Amsterdam's excellent series of roadway change by Cornelia Dinca.<sup>2</sup> Three locations were visited: Sint-Antoniesreestraat, Haarlemplein, and the Meseumplein.

## Sint-Antoniesreestraat

Sint-Antoniesbreestraat lies directly in the heart of Amsterdam's city Centrum. This street is an example of the people power to influence policies. Back in 1970, this street was planned to be a four-lane highway, but public protests prevented the street conversion and helped create a new era where people and bicycles were put ahead of cars and parking (Sustainable Amsterdam 2015, Schwanen et al, 2004; Buehler & Pucher, 2008). Today, the road is open and accessible to all users and the transformation of the road was relatively inexpensive (Figure 2).

The results of Public Space Analysis showed a high level of comfort and provided opportunities to navigate quickly and access any desirable destination on the street. Overall, the street achieves a mix of economic and social functions, and opportunities to enjoy surroundings.

<sup>2</sup><http://sustainableamsterdam.com/2015/12/livable-cities-campaign/>



*Figure 2: Sint-Antoniesbreestraat Amsterdam | Source: Google Street View*

## Haarlemplein

The Haarlemplein is located to the western side of the center of Amsterdam. The location in the 1970s was developed in line with auto-oriented principles with a wide roadway and auto parking. As Dutch urban design principles changed, the area was redeveloped into a plaza/market area (Figure 3). Vehicle restrictions were put in place to improve bicycle access through the intersection. In addition, the creation of a cycle track now enables a high volume of cyclists to travel through the area. Bicycle parking has also been created here. The use of protected signals for cyclists allows for their safe passage across the vehicular roadway. The area seemed to be very vibrant and full of activity, pleasant surroundings, opportunities to stand and sit, and a mix of economic and social functions.

For the high amount of people that moved through this area it had a low noise level because of the low restricted speed of vehicles. Integration of private businesses was also successful and added to the social and mixed land use functions of the area.

The market gathered crowds of both young and old, and also tourists like ourselves, while the fountains in the middle of the plaza drew in children to play in them. Wonderful cheese was also found here. Pucher and Buehler (2008) describe the Dutch cities as “people-friendly rather than car-friendly”, creating a sustainable and liveable community that serves the people well (p. 496). In addition, Pucher and Buehler (2008) state how most Dutch cities vastly improved cycling infrastructure while placing car restrictions on areas. This intersection is a prime example of how that occurred.

## Museumplein

The Museumplein area is just to the south of historic center of Amsterdam. The area now contains a large green space, reflecting pond, and playground. It is lined with several museums including the Rijksmuseum, which is home to centuries of Dutch art and history. This location features a multitude of opportunities for enjoyment such as restaurants with patios, as well as stands to buy food and souvenirs. It also contains one of the city’s famed, “iamsterdam” signs that is constantly crawling with tourists posing for the perfect photo.

While walking through the space the team noticed an element that was missing: automobiles. This area diverts automobile traffic around the space allowing only cyclists and pedestrians to traverse the Museumplein. Forbidding cars provides protection for tourists and children to relax and feel comfortable enjoying the area. The space is comfortable and has numerous places to sit and stay.

In researching the history of Museumplein, the team learned that it did not always look this way. In fact, the green space used to be a main thoroughfare for cars to enter the city center. In the 1990s, Amsterdam transformed a major street that was only accessible to drivers into a space that people of all ages, classes, and abilities, could enjoy. The team noted that automobile use was constrained in the area, but still planned for. There was a parking garage for 600 cars below the open space. The team argued that this illustrated that the Dutch recognize that car use still exists and should be accommodated to some degree, but should be relegated to certain spaces within the city (Sustainable Amsterdam, 2015).

Two transportation policy takeaways are visible at Museumplein. First, the main mode of transportation used throughout the space is cycling. Cycling “is socially equitable and has the potential to enhance mobility options for all groups” (Pulcher and Buehler 2012, p. 1).

Children are now able to access this space. Prior to the 1990s, the extent of their enjoyment would have been riding in the backseat of a car. The team saw children splashing in the reflecting pond and swinging from monkey bars. Second, the urban design surrounding Museumplein slows automobile traffic, enabling the space to be used for people rather than dominated by cars. Roads contain clear signage, diverting traffic around the space and naturally slowing the traffic by narrowing the lanes. Narrow lanes are a “less-forgiving” design treatment. These alterations cause drivers to re-focus and require them to operate at lower speeds, resulting in safer roadways (Ewing and Dumbaugh 2009). Automobile traffic is banned from the entire Museumplein, with the exception of underground parking, which makes the space as safe as possible for bike and pedestrians.

The 1990s redesign of Museumplein is a great example of how the Dutch view public space as something that should be accessed and enjoyed by all, not passed through quickly in a car. Cars are limited to driving around and parking beneath. This large grassy space provides a venue for musical events and public demonstrations. Amsterdamians and tourists have long since forgotten about the roadway that once monopolized this cultural heart of the city (Hertzberger 2008).



*Figure 3: Haarlemplein Amsterdam*



## Amsterdam Synthesis

After the place exercise, students were tasked with traversing Amsterdam to conduct interviews with everyday transportation users in different settings. Students used a template set out by Meredith Glaser of the University of Amsterdam and received “points” for completion of a series of these interviews and other tasks. Students then gathered at the University of Amsterdam for a discussion and synthesis of experiences.

The experience was both confusing and exciting for the students. They got lost, found their way, asked locals for lunch suggestions, and, simultaneously found a transportation system that facilitated access to multiple neighborhoods around the city. This process led the student teams to recognize differences in mobility patterns around Amsterdam and made the teams begin to question how this intricate system could be transplanted to the U.S.

Students distilled their experiences down to four broad areas:

- ◇ There were transportation differences between pre-war and post-war sections of Amsterdam. More vehicles were operated in the outer districts (post-war) of the City, while bike traffic increased as teams moved to the city center.
- ◇ Public transit is well connected across the city and multiple transportation modes are encouraged to get from point A to B.
- ◇ The Dutch people are very friendly and helpful with outsiders.
- ◇ The main question for the students was: How does the US create a multi modal transportation system like The Netherlands that recognizes our different norms and customs?

This question became the animating focus of the rest of the trip. Analysis of the town of Delft, a similar size city to the student’s experience in San Marcos, TX, helped to sharpen those questions.

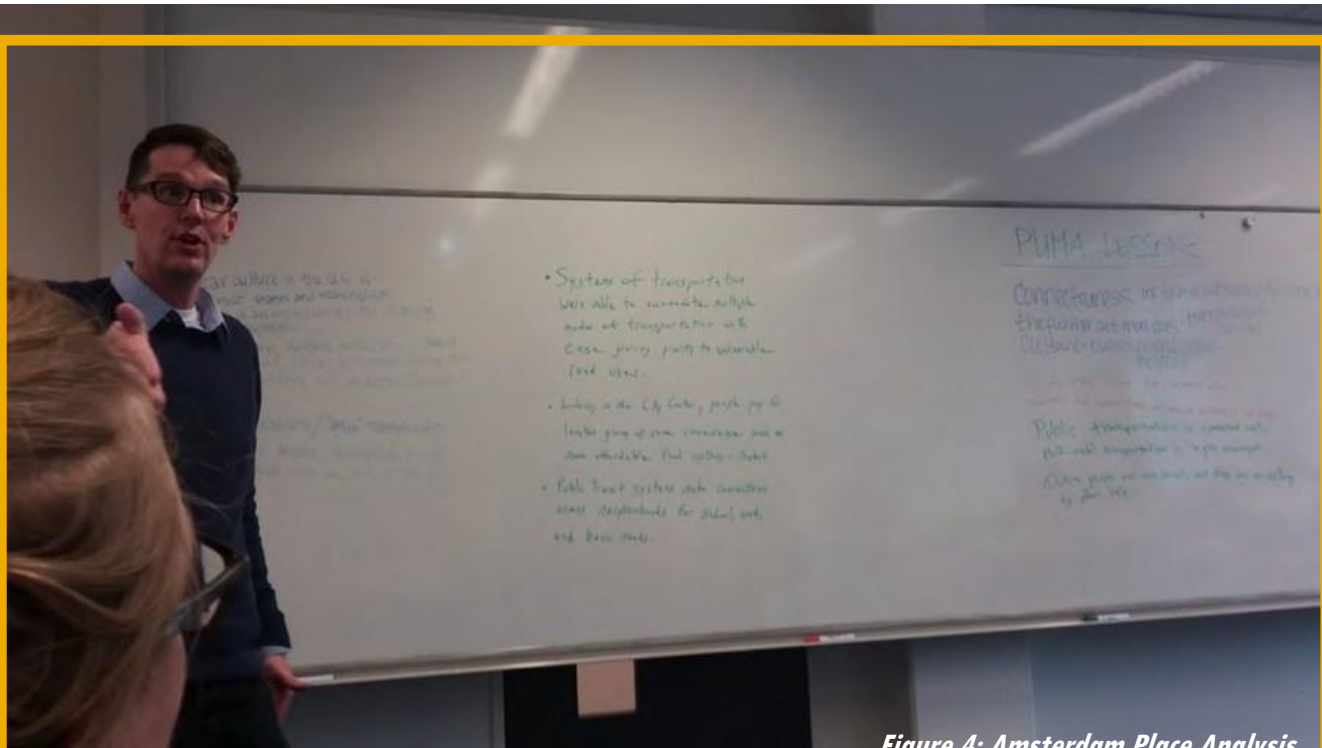


Figure 4: Amsterdam Place Analysis



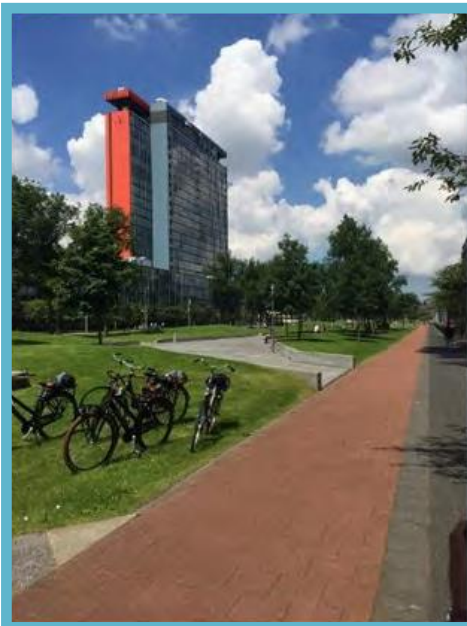
## Delft Case Study Analysis

Delft is a city of about 100,000 people about 20 kilometers from Rotterdam. Many of its streets are designed to encourage walking and cycling rather than driving. Delft shared many similar qualities to Amsterdam: old buildings, canals, similar architecture, cycling infrastructure, and the Dutch social aspects of biking. Delft was, however, much quieter and more relaxed. There was not as much fast paced movement in Delft. Students felt that this made it much easier and more stress-free to navigate for the beginner bicyclists.

Delft had very visible signs of the transformation to cyclist culture in the 1970s, and presented a clear picture of the neighborhoods developed over different decades. Our partners from Mobycon provided a tour of the distinct neighborhoods from different decades throughout history. The original layouts developed in the 1970s were altered back into children-friendly environments that included features of traffic calming such as cobblestone, elevated crosswalks, limiting vehicular access with “roadblocks”, and forcing the vehicle to drive slow on narrow and shifty roadways.

Figure 5c shows how the Dutch “reclaimed” their children’s space for the world’s first woonerf by restricting vehicle access down certain roads to allow for citizen’s to enjoy a new public space. When entering the new areas built during the 2000s, it was easy to see the same principles the Dutch had used in urban planning. These areas featured the same traffic calming features, but were developed with all users of roadways in mind to their original placement. Figure 5a shows an aerial view of Delft facing Rotterdam from the Nieuwe Kerk Protest Church on the market square.

Near the university, the wide streets that were altered back to pedestrian- and bike-friendly pathways created a wonderful environment for the university especially, routing all vehicles around to a specific side of the campus (Figure 5b). This is a feature that would be quite helpful at many universities, including Texas State.



*Figure 5 a (left), b (middle), c (right)*

The city provides an interesting counter-point for students from central Texas because it has a large population like San Marcos and is located near two larger urban areas (Rotterdam and Den Hague). The differences in modeshare of bicycles between the two towns also help to highlight policy differences as Delft has a bicycle modeshare of around 20% and San Marcos has a bicycle modeshare of .45%<sup>3</sup>.

Students were tasked with analyzing Delft through both qualitative place analyses and quantitative traffic user counts in order to provide a more complete examination. Three different types of locations were chosen for the analysis:

- ◇ A set of two bridges that linked the historic core to the Technical University of Delft.
- ◇ An area adjacent to the newly reconstructed train station
- ◇ A street in the core of historic Delft.

## Delft Bridge Links

This team of students observed and analyzed a pair of bridges that served the purpose of linking the city center of Delft to the area that housed the Technical University of Delft. One of these bridges primarily catered to motor vehicles, though additionally allowed for cyclists and pedestrians. The other bridge was designed specifically for bicyclists and pedestrians. The team conducted the analysis of these bridges in two ways: (1) a street interview, assessing the personality, actions, attitude, and stress of the bridges and (2) a street count, counting the number of motor vehicles, cyclists, motorized scooters, pedestrians, trucks, and buses, that crossed the bridge travelling either direction.<sup>4</sup>

The street interview tool structures an analysis of a street or place into five characteristics: street description, street actions, street attitude, street stress test, and street culture. The two bridges were fairly different in some aspects. The cyclist/pedestrian bridge was rather narrow, while still allowing the space for two-way bicycle traffic. There were raised concrete sidewalks on either side of the asphalt bikeway, though the sidewalks were fairly narrow as well. It seemed to see an almost constant flow of traffic. The motorized bridge, on the other hand, was very wide. On the outer edges of the bridge were raised concrete sidewalks, more broad than those found on the cyclist/pedestrian bridge. Next to the sidewalks, closer to the middle of the bridge were painted bike lanes travelling in single directions. A single lane of car traffic travelling each direction was placed next to the bike lanes, and in the very center of the bridge were two bus-only lanes, one for each direction. Both bridges seemed to primarily focus on moving traffic through the space; neither appeared to be very social atmospheres. The primary stress we observed on these bridges was the conflict that occurred when the bridges were raised to allow canal traffic to pass through. The stress this created was relatively low, as the bridges were never up for more than a few minutes at a time. This event caused a small amount more stress at the bicyclist/pedestrian bridge due to the lack of formalized lanes. When the bridge would come back down, cyclists would weave in and out, attempting to pass other cyclists, sometimes getting in the way of others.

In terms of the count exercise, the team conducted traffic counts from 10 AM to 11 AM on Thursday, July 7th of both the shared use bridge and the dedicated bicyclists/pedestrian bridges. The traffic count approach was designed to identify different type of users of the facilities (drivers, pedestrians, bicyclists, and motorcyclists).

<sup>3</sup> The analytical framing and data come from analysis by Greg Griffin from TTI. Thank you!

<sup>4</sup> In addition, teams conducted an overall place analysis to understand the background setting of these locations. Results of this exercise are not presented here as they were a preliminary step of the analysis.

The motorized vehicle bridge mode share was 66.4% automobile, 17.9% bicycle, 11.3% pedestrian, 2.6% bus, and 1.9 % motorbike (Figure 6). The pedestrian/vulnerable user bridge mode share was 85.7% bicycle, 10.2% pedestrian, and 3.6% motorbike (Figure 7).

Comparing the two bridges enabled our group to conclude that more pedestrians used the motorized vehicle bridge than the pedestrian/vulnerable user bridge. Raw count totals were 108 pedestrians for the motorized bridge and 68 pedestrians for the pedestrian/vulnerable user bridge.

Some possible explanations for this result is that bike traffic is very high on the pedestrian/vulnerable user bridge and there are no markings or wide enough sidewalks for pedestrians to feel safe. Another explanation is that the motorized vehicle bridge is a more direct route into the city and it would make sense for pedestrians to take the more efficient way. Something that the pedestrian/vulnerable user bridge did provide was a safe route for users of all ages and abilities. Students witnessed children biking across the bridge, as well as elderly people in motorized scooters who preferred to enter the city on the more protected bridge.

**Figure 6: Motorized Vehicle Bridge Delft**

Mode	Raw Count (10 AM - 11 AM)	Adjusted Daily Traffic (x26)	Mode Share
Bicycle	171	4,446	17.87%
Pedestrian	108	2,808	11.29%
Motorbike	18	468	1.88%
Automobile	635	16,510	66.35%
Bus/Truck	25	650	2.61%
Total	957	24,882	100%

**Figure 7: Pedestrian/Vulnerable User Bridge**

Mode	Raw Count (10 AM - 11 AM)	Adjusted Daily Traffic (x26)	Mode Share
Bicycle	573	14,898	85.65%
Pedestrian	68	1,768	10.16%
Motorbike	24	644	3.59%
Automobile	4	104	0.60%
Bus/Truck	0	0	0%
Total	669	17,394	100%

While the analysis of the bridges individually shows differences in preferences, a combined analysis of the bridge counts highlights the significance of active transportation for the City of Delft (Figure 8). Combined analysis of the data from both bridges shows that the majority of transportation users (about 56%) entering the historic core of Delft from the east utilized active transportation modes (walking and bicycling). These numbers underscore the truly multi-modal nature of Delft's transportation system.

*Figure 8: Combined Bridge Totals*

Mode	Raw Count (10 AM- 11 AM)	Adjusted Daily Traffic (x26)	Mode Share
Bicycle	744	19,344	45.76%
Pedestrian	176	4,576	10.82%
Motorbike	42	1,092	2.58%
Automobile	639	16,614	39.30%
Bus/Truck	25	650	1.54%
Total	1,626	42,276	100%

The key transportation policy takeaway from the bridge analysis for the team was that cycling is a mobility option for all groups, regardless of age. The team was surprised by how many children were cycling independently into the city center and how young they were (Figure 9). One team member found herself thinking, “where are his/her parents?” What she originally found alarming, she argued, should actually be celebrated. She argued that there was a different cultural norm in practice in the Netherlands. For children in the Netherlands, “riding a bicycle brings newfound independence and the ability to travel faster and farther, bringing within grasp destinations that previously were out of reach” (McDonald 2012, 235).



*Figure 9: Traffic Circle in Zwolle: Freedom*



## Delft Train Station

The redeveloped Delft Train Station serves as a new “landmark” and multipurpose facility as it encompasses municipal offices above the station. The area is undergoing massive redevelopment as train lines have been buried and major public space reorganization is taking place to “daylight” canals and reconnect Delft’s neighborhoods.

The team conducted a place analysis of the Delft Train Station area on July 7, 2016. The primary finding was that the area in its present setting serves primarily as a transportation hub with little emphasis placed on its potential role as public space. The area seemed more like a space to move through than a place to linger. This issue may, however, be being addressed with the current construction project that is developing daylighted canals and more park space next to the station. In addition, the relocation of the train tracks underground has made a drastic improvement in the area.

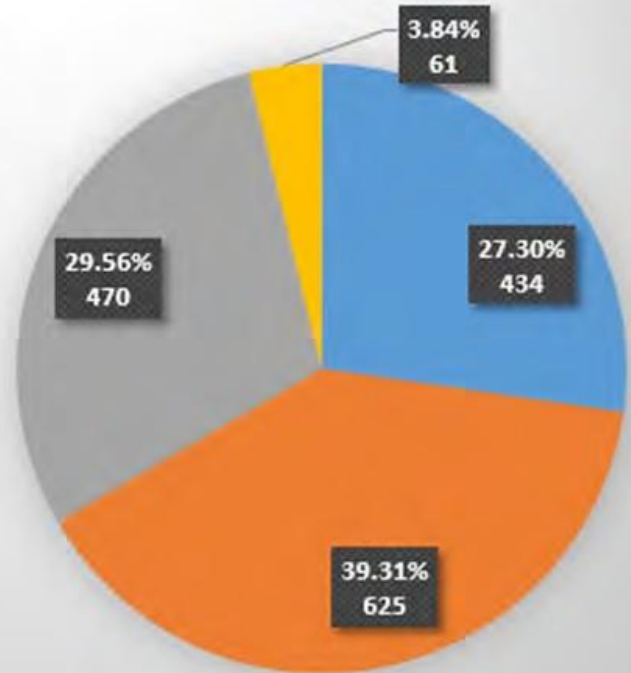
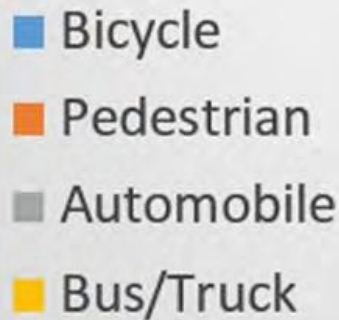
In terms of the Street Interview Tool, the team broke down finds based on the five key characteristics of the tool: (1) Street Description, (2) Street Actions, (3) Street Attitude, (4) Street Stress Test, and (5) Street Culture.

1. **Street Description:** the team noted that the area’s core functions are for the transportation and movement of people. The level and intensity of the area is high due to the large volume of pedestrian, cyclist, and automobile traffic. The appearance of this area will be substantially increased after construction is completed. Public space functionality, at present, is minimal.
2. **Street action:** the focal point of the area is unsurprisingly the train station. The street focuses mostly only on the movement/flow of people through the area, to and from the train station.

3. **Street Attitude:** the station is separated from the other areas (businesses and homes) mostly due to the construction that is taking place. This project should provide for the coherent bond that the area needs to connect both sides of the canals and train station together.
4. **Street Stress Test:** the roadway that runs parallel to the station has multiple modes (bus, tram, automobile, pedestrian, and bicycles) therefore rigid controls are necessary to protect the vulnerable users of this street and intersection. On the cycle track near the station, norms and courtesies allow for an easy flow of traffic even on a narrow temporary pathway for pedestrians and cyclists.
5. **Street Culture:** the street draws in a large amount of people due to the transportation hub; this travel-oriented culture that is now present will likely be altered by the completion of the park.

The counts conducted at our location near the train station yielded some interesting results. Overall, our counts indicated the majority of modal split as 39.31% pedestrian (count: 625), 29.56% automobile (count: 470), 27.3% bicycle (count: 434), and 3.84% bus/truck (count: 61). Figure 10 displays this information in a pie chart. The majority of transportation users of this area utilized active transportation (about 56%). Interestingly, this almost the exact same percentage of active transportation users from the bridge count analysis.

## Overall Percentage and Counts



**Figure 10: Delft Train Station Counts**

### Delft Historic Center: Oude Langendijk

Oude Langendijk Street is located next to the Market Square and Nieuwe Kerk. It serves as a primary route to the historical part of the city and the market, with a connection to the train station. The street runs along the southern side of the central square. In the section of the road near the main square, there is narrow road and the presence of many pedestrians discourage cars from driving on that part of the road (Figure 11).

The first task was the street interview (Figure 12). Most of the traffic is directed towards the market, and Oude Langendijk serves as a connector to many other popular locations. There were very low stress levels on this street because the safety of vulnerable users was given top priority which forced cars to slow down.



**Figure 11: Oude Langendijk, Delft**

While the stress levels were low, there was enough chaos to keep people aware of their surroundings. The design of Oude Langendijk gives users opportunities to enjoy the restaurants, market, and the scenery while still effectively moving traffic.

The questions made the team think hard about the true purpose of the street. As they walked down the street, the team noticed that there were really two sides of the street that had completely different functions. The side nearest the train station and market served as a route to those two destinations. The other end of the street that was wider and more served more as a stop for tour buses and a route to central Delft.

The count analysis turned out to be on a market day from 10 to 11AM. Oude Langendijk has three access points into the market, and the team was located near the central entrance. The results are represented in the table below (Figure 13).

Figure 12: Oude Langendijk SIT Analysis

Street Description	Street Actions	Street Attitude	Street Stress Test	Street Culture
West side had one lane with sidewalk on one side. East side had two lanes divided by a median with sidewalks on both sides. High level of intensity on both sides, but more noticeable on West side.	Most of the traffic is directed toward the market. Provides access to many popular locations.	Street and buildings cooperate to create safe and efficient traffic flow.	Very low stress levels, but the stress that exists keeps people aware of their surroundings, which creates a safe environment.	Street not only serves as a major connection to many locations, but also acts as a market square and tourist destination creating a friend and open environment.

Figure 13: Oude Langendijk Count Analysis

	Automobiles	Bicycles	Pedestrians	Bus/Truck	Motorbike
Hour Count	8	931	1212	4	60
Multiplier	26	26	26	26	26
Estimated Daily Total	207	24,206	31,512	104	1560

The data show that active transportation modes (walking and bicycling) represent 97% of transportation users of the area. This shows the importance of walking and bicycling in the historic core of Delft. While motor vehicles represented a significant share of transportation users in the analysis of other locations outside the core of Delft, walking and bicycling predominate in the historic core.

It should be noted that the team’s count was on a market day and may not accurately reflect non-market day use of the area. The team noted that even with the additional active transportation traffic from the market, there were no significant traffic delays or flow issues. They noted that “traffic moved smoothly”.

## Translating the Dutch Experience to the U.S.

The Delft experience helped students better understand how the Dutch system works, but Delft's historic setting can seem very different for a set of American student's from Texas. Student's felt that Rotterdam, where they were based for the second half of the trip, was a useful setting for asking more questions about translating their experiences to a U.S. framework.

Rotterdam is a notably different city than Amsterdam and Delft. Serving as a large port for the Netherlands, Rotterdam was bombarded during WWII leading to a unique urban planning development. The city feels like an American one, but transportation networks allow for all users and modes to safely access the roadways (Figure 14).

The students felt that access to roadways by vehicles is more of a priority in Rotterdam than other cities in the Netherlands, but, bicycling through the city was still, in the words of one student, "stress free for myself, and seemed to be pretty easy". Another student described that Rotterdam "felt like an American city that was cyclist orientated".

The Rotterdam experience seemed to allow the students to see the potential of cycling for U.S. cities. The team met with the City of Rotterdam's Bicycle Coordinator, John Akkerhuis, who provided a detailed presentation on Rotterdam's efforts to enhance cycling access within the city.



*Figure 14: Rotterdam*



# Central Texas Analysis & Policy Transfer



After the trip, the students returned to Texas to complete their work. Students were tasked with doing detailed analyses of locations in Central Texas to compare with those in the Netherlands. Several students analyzed locations in San Marcos, the home of Texas State University. Students argued that San Marcos has some potential advantages that could make it highly multi-modal. According to Pucher and Buehler (2012) most small cities in Europe and the United States with high cycling rates have a university presence which give them particular advantages. Financial limitations of students, high demands on parking infrastructure, cost of parking, thriving downtown areas, compact city limits, and progressive culture can also increase cycling in these locations. Students noted that despite the presence of these conditions in San Marcos, student housing is scattered in all directions away from the city center making it difficult to build a strong multi-modal system.

Students specifically analyzed a street near Texas State's campus, LBJ between Hopkins and Hutchinson (Figure 15). This street is home to one of San Marcos' finest restaurants, the Root Cellar. It is also home to many shops and small places to eat. Students chose this location because it felt like it was a good representation of San Marcos culture. Count analysis was done on a weekday from 10 -11, just as it had been done in Delft. Figure 16 shows the results.

*Figure 16: Count Analysis San Marcos*

	Cars	Bikes	Pedestrian	Motorbikes	Bus/Trucks
Hour Count	162	0	123	1	0
Multiplier	26	26	26	26	26
Adjusted Daily Total	4,212	0	3,198	26	0

The data show that there is a surprising balance between auto and pedestrian users on the street. Auto users represent about 57% of street users while pedestrians represent about 43% of users. Students found that auto traffic remained fairly consistent. For pedestrian traffic, students saw a fairly steady increase as the hour went on. Students noticed that most pedestrians were mainly college kids with their parents going to eat, but not going in any other stores.

Students felt that the comparison to Delft was stark. They noted that “it is amazing to see the complete difference in bicycle and automobile traffic. The amount of pedestrians that we encountered surprised me actually, as I never saw San Marcos downtown as much of a destination unless for nightlife”. It should also be noted that students did not observe a single bicyclist during their count analysis in San Marcos.

After performing these analyses in the different cities and countries, students felt that the data showed two completely different cultures. What students observed in the Netherlands was an overall bicycle friendly country, due to the protest and push from citizens in the 1970’s. Upon returning to San Marcos, students saw “a disturbing lack of amenities for people who chose these options”. In summary, for example, one student pointed out that “coming from my home on Aquarena there is barely a sidewalk leading to campus, leaving cyclists and pedestrians to use the edge of the road if they want to get to school. The only places where amenities for pedestrians and cyclists are found are in the downtown area. It seems they have made it so you have to drive downtown, then walk around, instead of creating infrastructure that allows people to walk or bike all throughout the city.”

## I-STEP Future Directions

I-STEP is a joint project of Texas State University’s Center for Research, Public Policy, and Training, CivilStreets.org, and the University of New Orleans Pedestrian Bicycle Resource Initiative. I-STEP is designed to help build a continuing dialogue on knowledge transfer related sustainable transportation.

In 2017, I-STEP will continue the student-related study abroad program and will expand to include a professional engagement seminar. Both events are planned to coincide with the Velo -City Conference in the Netherlands in June 2017. For further information on these programs, please visit <http://crppt.polisci.txstate.edu/Study-Aboard.html>.

If you are interested in engaging with I-STEP, please contact our team:

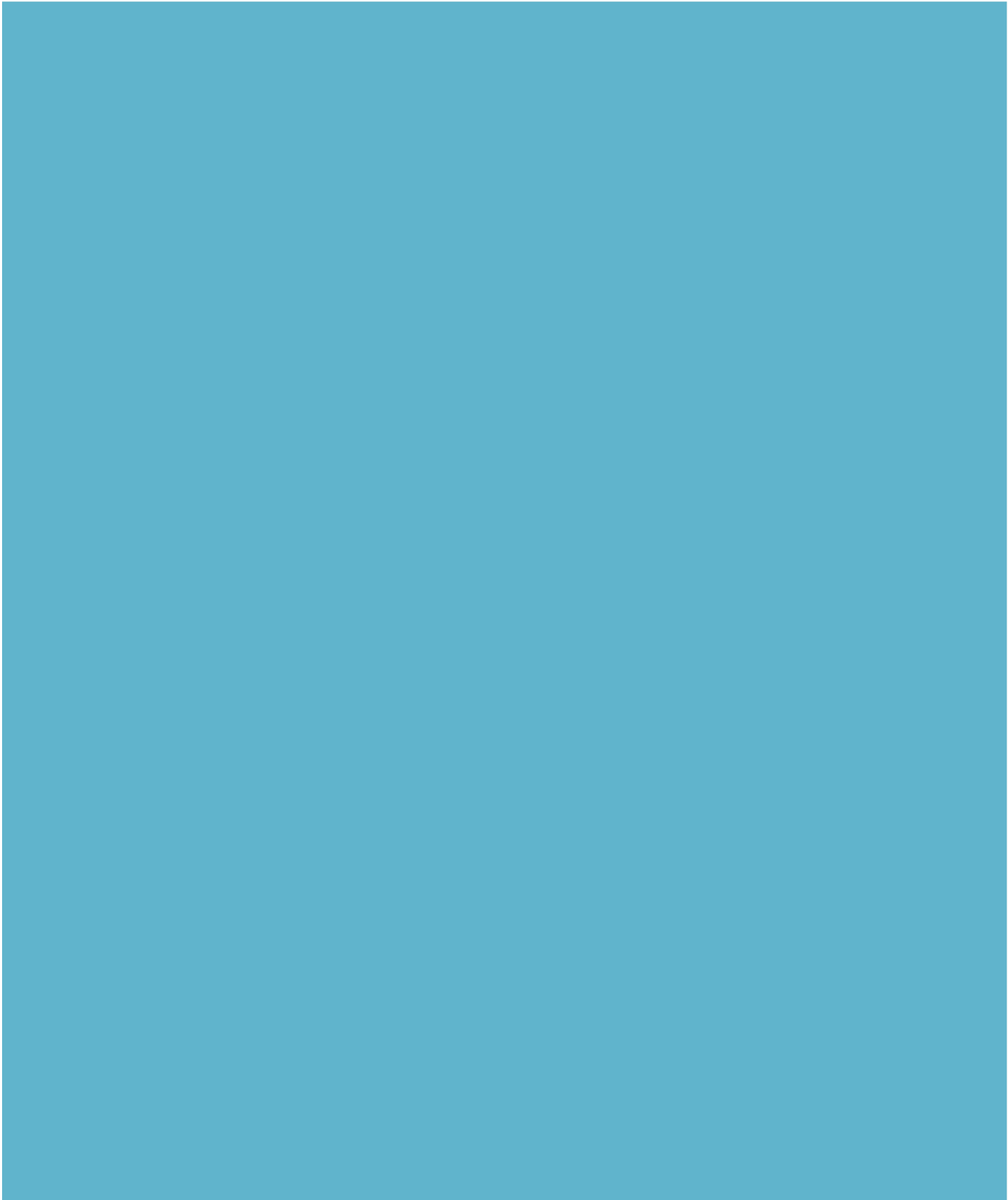
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In addition, follow [I-STEP on Facebook](https://www.facebook.com/International-Sustainable-Transportation-Engagement-Program-1711225532462663) for regular updates about upcoming activities and events! ([www.facebook.com/International-Sustainable-Transportation-Engagement-Program-1711225532462663](https://www.facebook.com/International-Sustainable-Transportation-Engagement-Program-1711225532462663))

## Works Cited

- Ewing, R., and E. Dumbaugh. "The Built Environment and Traffic Safety: A Review of Empirical Evidence." *Journal of Planning Literature* 23.4 (2009): 347-67.
- Hertzberger, H. *Space and Learning: Lessons in Architecture* 3. Rotterdam: 010, 2008.
- McDonald, N. 2012. Children and Cycling in City Cycling, ed. J. Pucher and R. Buehler. Cambridge: MIT Press.
- Pucher, J. R., and R. Buehler. *City Cycling*. Cambridge, MA: MIT, 2012.
- Pucher, J., & Buehler, R. (2008). Making cycling irresistible: lessons from the Netherlands, Denmark and Germany. *Transport Reviews*, 28(4), 495-528.
- Schwanen, T., Dijst, M., Dieleman, F. (2004). Policies for Urban Form and their Impact on Travel: The Netherlands Experience. *Urban Studies*, 41(3): p. 579-603.
- Sustainable Amsterdam. 2015. Livable Cities Campaign. Retrieved from <http://sustainableamsterdam.com/2015/12/livable-cities-campaign/>



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