

RESILIENCE ACCELERATOR: THE HAGUE

RESILIENT TRANSPORTATION
SYSTEMS

WORKSHOP REPORT
SEPTEMBER 10-12, 2018

COLUMBIA

Center for
Resilient Cities
and Landscapes

109

RESILIENT

CITIES

CENTER FOR RESILIENT CITIES AND LANDSCAPES

The Center for Resilient Cities and Landscapes (CRCL) uses planning and design to help communities and ecosystems adapt to the pressure of urbanization, inequality, and climate uncertainty.

Through interdisciplinary research, visualization of risk, project design scenarios, and facilitated convenings, CRCL works with public, nonprofit, and academic partners to deliver practical and forward-thinking technical assistance that advances project implementation. Through academic programming, CRCL integrates resilience thinking into design education, bringing real-world challenges into the classroom to train future generations of design leaders.

Founded at the Columbia University Graduate School of Architecture, Planning and Preservation in 2018 with a grant from The Rockefeller Foundation, CRCL extends Columbia's leadership in climate-related work and support of the interdisciplinary collaborations and external partnerships needed to engage the most serious and challenging issues of our time. Allied with the Earth Institute's Climate Adaptation Initiative, CRCL works across the disciplines at Columbia by bridging design with science and policy with the goal of improving the adaptive capacity of people and places.

100 RESILIENT CITIES

Pioneered by The Rockefeller Foundation

100 Resilient Cities - Pioneered by The Rockefeller Foundation (100RC) is dedicated to helping cities around the world become more resilient to the physical, social, and economic challenges that are a growing part of the 21st century.

100RC supports the adoption and incorporation of a view of resilience that includes not just the shocks, such as earthquakes, fires, floods, but also the stresses that weaken the fabric of a city on a day-to-day or cyclical basis.

CONTRIBUTORS

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The Hague has an opportunity to more effectively plan transportation infrastructure that learns from past mistakes, anticipates future trends, builds a coalition across fields, and brings multiple benefits to its residents by studying how transportation projects are conceived, planned, implemented, used, and monitored.





Den Haag Centraal, the largest train station in the Netherlands, is a hub for regional rail, municipal trams, busses, and the Rotterdam Metro.

Overview

A transportation infrastructure project in The Hague will contribute to urban resilience by addressing the challenges of shifting populations, poverty, and exclusion throughout the planning process.

Den Haag Centraal, The Hague's central transit hub, provides access to all three of the city's passenger train systems: The state-wide Nederlandse Spoorwegen (NS), the city trams, and the Rotterdam Metro Erasmuslijn, which provides commuter access to the Hague's nearest metropolitan neighbor and points in between.

Centraal was a fitting place for us to start our visit to The Hague, where we prepared to meet with civil servants and stakeholders to discuss the city's nascent plans to build a new rail line—the tentatively named Leyenburg Corridor. This line would connect the central transit hub to The Hague Southwest, a cluster of neighborhoods in the peripheral Escamp district that have been targeted for new housing construction in the coming decades.

The Leyenburg Corridor project

is still in an early planning phase, so it presents an opportunity to demonstrate how transportation projects can address the types of shocks and stresses that are prevalent in the Southwest, such as social incohesion and limited access to private investment, employment opportunities, and health resources.

We participated in tours, conversations, presentations, workshops, and interviews over three densely-programmed days in The Hague. We learned about the city's municipal transit system, social life in Southwest and Escamp, the district's history, its multicultural population, and the services and opportunities that are available to it—and those that are absent.

During the 2018 fall semester, graduate students in the Columbia University Urban Planning program conducted research precedent

transit projects around the world and investigated ways in which transportation planning can contribute to urban resilience. In each case, students considered the purposes for which precedent projects were conceived and constructed; the political and institutional context in which they were developed; how planning decisions were made; and the standards by which they were evaluated. The students then analyzed these case studies for lessons that may be applied to similar transportation projects in the future.

A companion report contains the research for our partners in The Hague as examples of transportation planning processes that may inspire further ideas for the planning and implementation of the Leyenburg Corridor.

The Leyenburg Corridor presents an opportunity for The Hague to demonstrate the ability of transit-oriented development to integrate a broad range long-term objectives, such as strengthening social cohesion at the neighborhood scale, catalyzing urban densification, increasing public investment, giving access to economic opportunities, and increasing the efficiency and accessibility of health resources.



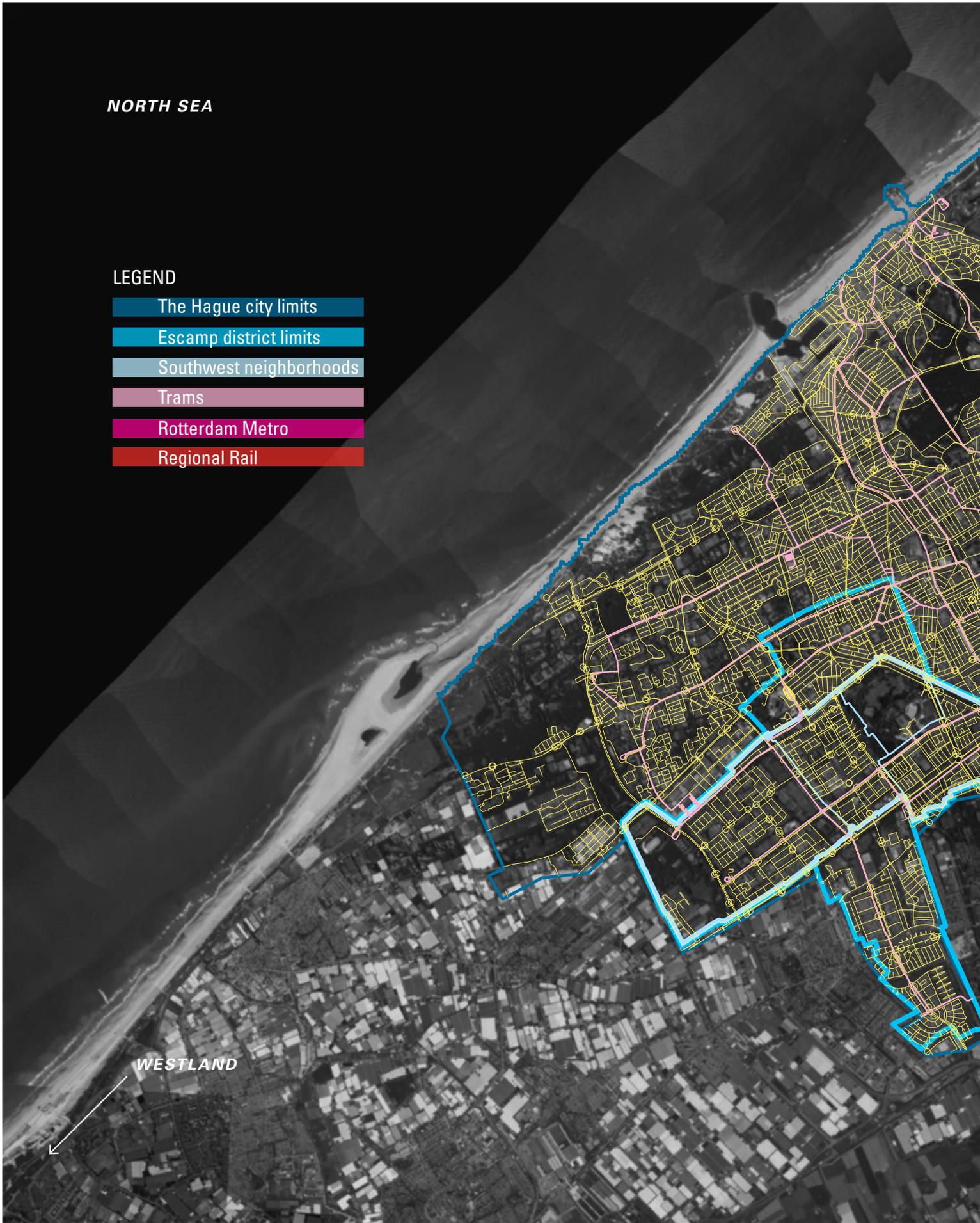
The Rotterdam Metro was extended to a terminal station in Den Haag Centraal in 2009. Line E, known colloquially as the Erasmuslijn, is operated by the Rotterdam company RET.

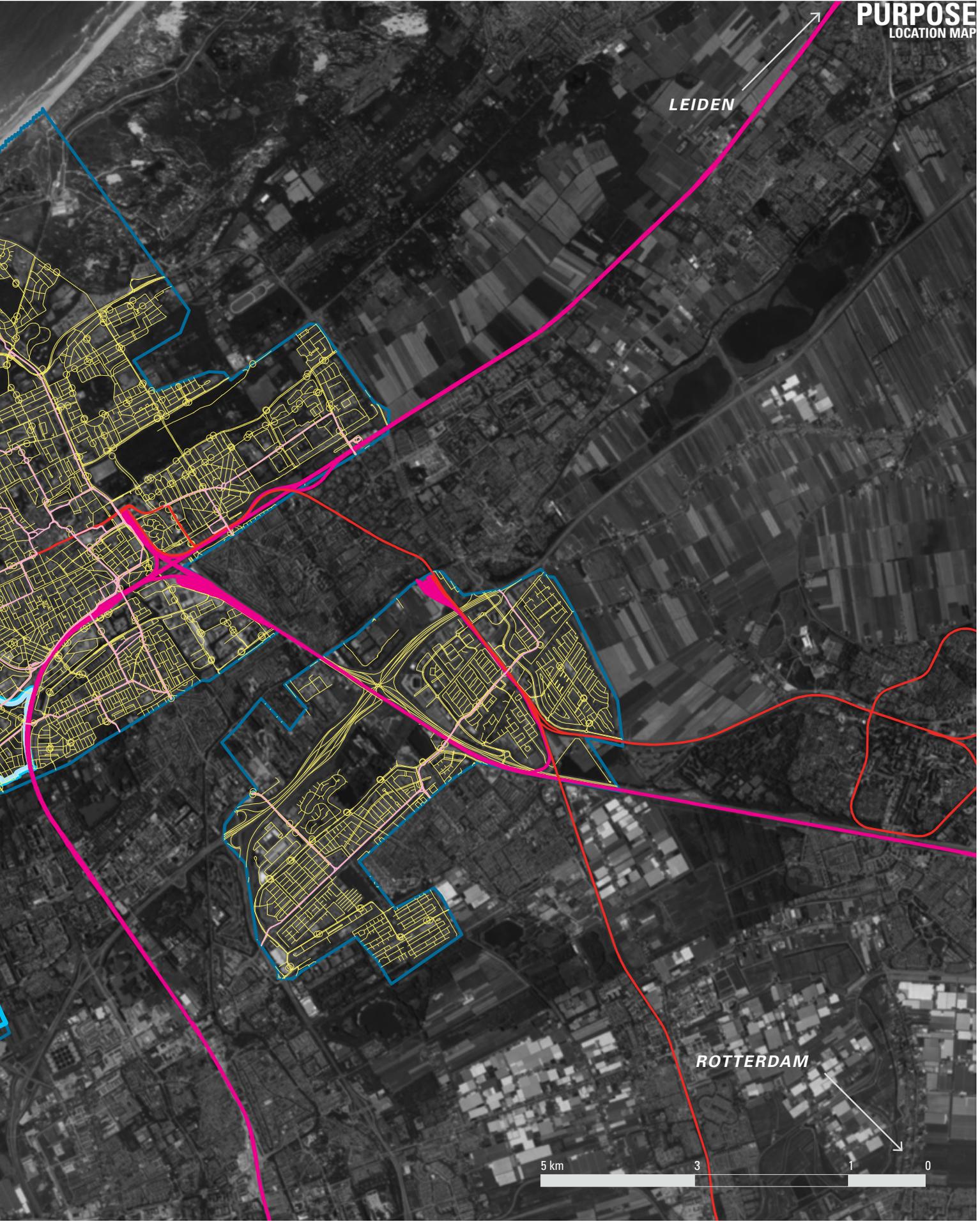
NORTH SEA

LEGEND

- The Hague city limits
- Escamp district limits
- Southwest neighborhoods
- Trams
- Rotterdam Metro
- Regional Rail

WESTLAND





LEIDEN

ROTTERDAM



NORTH SEA

LEGEND

- The Hague Boundary
- Day 1: Scoping
- Day 2: Workshop
- Day 3: Interviews

- ① District Office of Escamp
- ② Sportcampus Zuiderpark
- ③ Marcustuin Neighborhood Garden
- ④ Activities Centre Jan Luykenlaan
- ⑤ House Vestia
- ⑥ Primary School
- ⑦ Neighborhood Room/Tolerance Program
- ⑧ Green Oasis
- ⑨ Resto van Harte
- ⑩ Accelerator Workshop
- ⑪ Leyweg Shopping Center
- ⑫ Haagse Hogeschool
- ⑬ Leiden University
- ⑭ City Hall

WESTLAND

LEIDEN

ROTTERDAM



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September, 2018	Site Visits Accelerator Workshop Interviews with Academic Partners
October, 2018	Workshop Report Delivery
November, 2018	Student Case Study Research
December, 2018	Student Case Study Presentations
January, 2019	Case Study Report Delivery

Site Visit

On Monday, September 10, 2018 we made 12 stops on a tour of the Escamp district and its four Southwest neighborhoods. At each stop, we were met by city officials, neighborhood activists, residents, or institutional representatives who discussed their work with us. Cumulatively, these conversations outlined a portrait of the area, its physical and social makeup, its history, and some of the ideas proposed for its future.

Sites and meetings, in order of visitation:

Den Haag Centraal
Klaske Hermans, Program Advisor, Municipality of The Hague

District Office of Escamp at Leyweg
Rene Baron, City Director of Escamp District

District History
Albert Olierook, Area Director Escamp

Sportcampus Zuiderpark

Marcustuin Neighborhood Garden
Bettelies Westerbeek, Missionary Pioneer, Moerwijk

Activities Centre Jan Luykenlaan
Denise Rifaela, Public Safety Professional, and others

House Vestia
Rob Voojis, Manager of Social Management, Vestia

Primary School
Fatima Aarab, Active Mothers Group

Neighborhood Room/Tolerance Program
El Hoesne, Representative, Mosque Annour, and Ben Damen, Tolerance Platform

Green Oasis
Nander Krapels, Community Builder, Stichting Mooi

Made in Moerwijk
Peter Verstappen

Resto van Harte
Ben Lachab, Restaurant Manager

Den Haag Centraal

Klaske Hermans

The Hague's Central Station (Den Haag Centraal) supports three rail systems: the regional and state-run Nederlandse Spoorwegen (NS) service, the city-wide tram service, and the Rotterdam Metro's Erasmuslijn (the E line), which serves commuter stops between the two cities. When the Erasmuslijn was extended to Den Haag Centraal in 2011, nearby residents felt that the construction was disruptive to their neighborhood. They successfully leveraged their concerns to negotiate for the redesign of a nearby park.

Lesson: The Leyenburg Corridor may similarly disrupt neighborhood life in Escamp. The Hague should create opportunities for Southwest neighborhood groups to participate in planning conversations and negotiate for desired amenities.



Clockwise from top left: Klaske Hermans and an RET tram interior, Den Haag Centraal upper level; the Rotterdam Metro E Line platform

District Office of Escamp

Rene Baron and Albert Olierook

The Southwest is emblematic of some of The Hague's most acute social stresses. Poverty rates are high, as is distrust of the government and social isolation. Employment and education opportunities are scarce. These stresses were compounded by decreased public investment during the economic downturn in the late 2000s.

Escamp is the largest and poorest of The Hague's eight districts, and its four Southwest neighborhoods are among the most disadvantaged and ethnically diverse in the Netherlands. These neighborhoods were built in the 1950s to house middle-class Dutch residents in the wake of World War II. They have since been settled by immigrant communities from former Dutch colonies, the Middle East, Eastern Europe, and elsewhere. The neighborhoods' population declined sharply in the 1980s, as ethnically Dutch residents moved to newly-built suburbs. The physical and social infrastructures have since fallen into disrepair despite a period of renewed investment in the area during the 1990s and early 2000s.

Lesson: A resilience plan should be mindful of the possibility of abrupt or gradual political, economic, and social change.



Clockwise from top left: District Manager Rene Baron introduces Escamp; District Office interior, with public library and cafe; Albert Olierook explains the social and physical history of the Southwest neighborhoods.



Escamp District Offices, with nine stories of municipal offices and nine stories of residential apartments, is the tallest building in Escamp.



Lunch at the Activities Centre Jan Luykenlaan, where volunteers from the neighborhood organize activities and programs for Southwest residents.

Marcustuin Neighborhood Garden

Bettelies Westerbeek

Pastor Bettelies Westerbeek is one of many community leaders in Southwest who can facilitate communication between residents and civil service organizations. Westerbeek manages the Marcustuin Neighborhood Garden; when she was appointed to her church in the Moerwijk neighborhood in 2016, she asked nearby residents to suggest programs for a vacant lot adjacent to its building. With the help of local volunteers, she built a public garden with individual lots and a communal herb garden. Westerbeek holds a gathering every Sunday, where dozens of neighbors cook together using the garden's pizza oven.

Lesson: Community leaders can facilitate communication between residents and institutions, which is needed to prevent new infrastructure from exacerbating, rather than mitigating, existing stresses.



Bettelies Westerbeek, a church pastor in Moerwijk, has organized local volunteers to build and maintain a community garden in a vacant lot adjacent to her church.

Vestia House

Rob Voojjs

The Hague wants the Leyenburg Corridor to support new housing, including subsidized and market-rate units. Southwest's post-war housing complexes were designed for small Dutch families in the 1950s, and are now inadequate for late-century population changes and larger immigrant families. Many of the current residents require social services, such as mental health services, that are not easily accessible. Vestia, the largest public housing corporation in the Netherlands, operates the vast majority of subsidized housing in the area. Slated for demolition, the mid-century complex we toured will soon be replaced by a new building, similarly designed but with one additional floor.

Lesson: A new model for urban development should accommodate future economic, demographic, and social change.



More than 60 percent of the housing in Southwest is subsidized by the government. Vestia, a social housing organization, manages the vast majority of the social housing in these neighborhoods.

Primary School

Fatima Aarab

Once children graduate from elementary school in the Southwest, there are few resources for them in their neighborhoods. The students are bused to high schools outside of the Southwest, where they sometimes cause minor mischief or commit acts of vandalism. To address these issues, a group of student mothers maintain open communication with school officials and local police. The relationships between these groups has, by all accounts, been cooperative.

Lesson: The Hague can use the Leyenburg Corridor to make educational opportunities more accessible to Southwest families. Denser neighborhoods may be able to support new high schools, and the corridor can decrease commutes to nearby colleges and vocational schools. Because the new corridor would not be completed for 20 years, The Hague must consider how education and employment needs may change in coming generation and plan the corridor route to be flexible to such uncertainties.



At a primary school in Escamp, an organization of concerned mothers meets weekly to speak with and listen to civil servants from the school, police, and other public institutions.

Tolerance Platform

El Hoesne and Ben Damen

The Tolerance Platform organizes multicultural programs, often involving local churches and mosques. According to Damen and Hoesne, many local problems are difficult to recognize. Loneliness, they say, is widespread. People feel “unseen.” Ethnic minorities struggle to assimilate. Other problems are more concrete: Physical infrastructure is inadequate. Literacy rates are too low. Public programs often target city-wide audiences, at the expense of local needs.

Lesson: Individual and communal isolation are major stresses in Southwest. While there are many programs in Escamp that address these, the programs are not always able to reach the populations they try to support. New transportation infrastructure should not only enable the creation of new services, but also strengthen existing ones.



The Tolerance Platform works with local religious institutions, like El Hoesne’s mosque, to organize interfaith programs that celebrate the traditions of Escamp’s diverse population.

Green Oasis

Nander Krapels

The Green Oasis in the Bouwlust neighborhood provides a vital access point to a range of services for Southwest residents. Any resident can walk in without an appointment and be connected, as needed, to health, education, safety, or other social services. The Oasis also provides public facilities, such as kitchens, gathering spaces, and classrooms. Volunteers, many of them recently arrived immigrants or refugees, enlist in “dot jobs,” low-wage work or training that serve as stepping stones as they learn the Dutch language, build lives, and launch careers in the Netherlands.

Lesson: The Green Oasis is an important resource for the Southwest, but it is not easy for most residents to reach. As The Hague plans new transportation infrastructure, it should consider establishing similar service centers in coordination with transportation routes.



The Green Oasis is an access point for many public resources. Escamp residents can arrive without an appointment and be connected with service providers.

Made in Moerwijk

Peter Verstappen

Resto van Harte brings Southwest residents together with community activists and civil servants to share meals and encourage communication among neighbors. The traveling pop-up restaurant is open once or twice each week, usually in a community center or other public space with a kitchen. Volunteers, including professional chef Ben Lachab, cook and serve meals.

Lesson: As with the Green Oasis, organizations like Resto van Harte must be easily accessible to be effective. Transportation corridors can strengthen such institutions if nearby development plans create spaces for them to operate.



At a storefront upcycling center in Moerwijk, Southwest residents can learn fabrication skills and make and sell crafts from discarded material. (Source: Made in Moerwijk)

Resto van Harte

Ben Lachab

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Lesson: As with the Green Oasis, organizations like Resto van Harte must be easily accessible to be effective. Transportation corridors can strengthen such institutions if nearby development plans create spaces for them to operate.



Resto van Harte is a meeting place for people who live or work in The Hague Southwest, where they share meals and ideas.

Workshop Agenda

September 11, 2018

Construction of the Leyenburg Corridor, with a stop in Zuid West District, presents a set of challenges that can be informed by past and ongoing major transportation projects. How can we build transportation infrastructure that maximizes the benefit to those who need it most, minimizes harm to the environment, is robust to the future stresses and shocks of the 21st century, and most of all, sets a framework for sustainable, equitable and resilient growth for our cities?

This workshop served as a starting point for a research program conducted by the Columbia University Center for Resilient Cities and Landscapes and 100 Resilient Cities. The workshop objective was to clearly identify the most pressing research questions to apply to both the Leyenburg Corridor and comparable precedents around the world.

Time	Activity	
9:00 – 9:30	Welcome and Introductions	Anne-Marie Hitipeuw
9:30 -9:45	Overview of Resilience Accelerator program and scope of research with the Hague	Thad Pawlowski and Sam Carter
9:45 – 10:00	Update on the Hague’s Resilience Strategy	Anne-Marie Hitipeuw
10:00-10:15	Zuid-West site visit observations	Gideon Finck
10:15 – 10:45	Long Term vision for neighborhood	Marije Stelloo
10:45-11:15	Exercise 1: Mapping the Hague’s future shocks and stresses to Zuid West. <i>Indicate specific geographies of risk and opportunity on neighborhood map and shocks and stresses matrix</i> <i>5 minute report back to group</i>	Break into two tables with Sam, Thad, and Gideon facilitating.
11:15 – 11:30	Leyenburg Corridor Proposal	David van Keulen/ Bastiaan ter Horst
11:30-12:30	Exercise 2: Defining potential impacts of project (positive and negative) at multiple scales <i>Consider social, environmental, and economic impacts</i> <i>Consider these impacts at multiple scales from the local, neighborhood, city and national scale</i> <i>5 minute report back to group</i>	Breakout tables
12:30 – 1:00	Lunch	

1:00 – 1:30	Overview of precedent case studies <i>7-line extension to Hudson Yards</i> <i>Miami-Dade SMART plan</i> <i>Bus Rapid Transit system in Curitiba,</i> <i>Metrocable in Medellin</i>	Thad Pawlowski and Gideon Finck
1:30 – 2:30	Exercise 3: Resilient Implementation <i>Who should be involved when and how?</i> <i>What are likely opportunities and barriers to stakeholder engagement?</i> <i>How can the process be more inclusive, adaptable, collaborative, and reflexive?</i>	Breakout tables
2:30 – 3:30	Exercise 4: Resilient Outcomes <i>What are some measurable outcomes that could be tracked as the project is implemented?</i> <i>How do these outcomes relate to the underlying shocks and stresses of the neighborhood?</i> <i>What other factors that may influence the success of the project?</i>	Breakout tables
3:30 – 3:45	Break	
3:45 – 5:00	Synthesis of research questions and Next Steps	Thad and Sam to facilitate

Workshop Participants

Resilient The Hague and 100 Resilient Cities invited representatives from municipal government, policy advisors, and subject-matter experts from universities and non-profit organizations to participate in the Accelerator Workshop. The group included civil servants from municipal planning and transportation departments with knowledge of The Hague's development plans, as well as its political and regulatory environments. Participants also included representatives from the Escamp district office, some of whom work closely with neighborhood groups.

Participants:

Rene Baron

City Department Director Escamp, The Hague

Christine Carabain

Sustainable Society Program Leader, Social and Cultural Planning Office

Samuel Carter

Director of the Resilience Accelerator, 100 Resilient Cities

Serge Eurlings

Director of Income, Participation and Facilities, The Hague

Dymphna Faas

Area Manager City Department Escamp

Gideon Finck

Associate Research Scholar, Center for Resilient Cities and Landscapes

Femke Gubbels

Program Manager, 100 Resilient Cities

Anne-Marie Hitipeuw

Chief Resilience Officer, The Hague

Bastiaan ter Horst

Senior Consultant, LightrailManagement, The Hague

David van Keulen

Head of Department Mobility, The Hague

Mirjam van der Kraats

Intern, Resilient The Hague

Maxime van Leeuwen

Intern Department Mobility

Bob van Meijeren

Housing Policy Advisor, The Hague

Thaddeus Pawlowski

Director, Center for Resilient Cities and Landscapes

Erik Pruyt

Associate Professor of System Dynamics and Policy Analysis, TU Delft

Merijn Schik

Head of Strategy Unit, The Hague

Eline van Staalduinen

Policy Advisor, The Hague

Marije Stelloo

Urban Planner, The Hague

Rene Teule

Strategy & Research Program Manager, The Hague

Matthijs de Vries

Strategy Coordinator, The Hague



The one-day workshop was held in a pavilion in Zuiderpark, one of two large parks in Escamp.

City Planning

Marije Stelloo

Long-term projections show a need for as many as 30,000 new housing units for 70,000 new inhabitants in Escamp, but the precise shape and density of new housing facilities and the phasing of their construction are still a matter of debate. Stelloo presented a few scenarios that would address this need. These included 4,200 new housing units in Southwest neighborhoods in the next 20 years, without major adjustments to infrastructure or amenities; 10,000 new units with a more efficient energy grid, more market-rate housing, renovations in two regional parks, linear corridors between them, five or more new schools, and a larger shopping center.

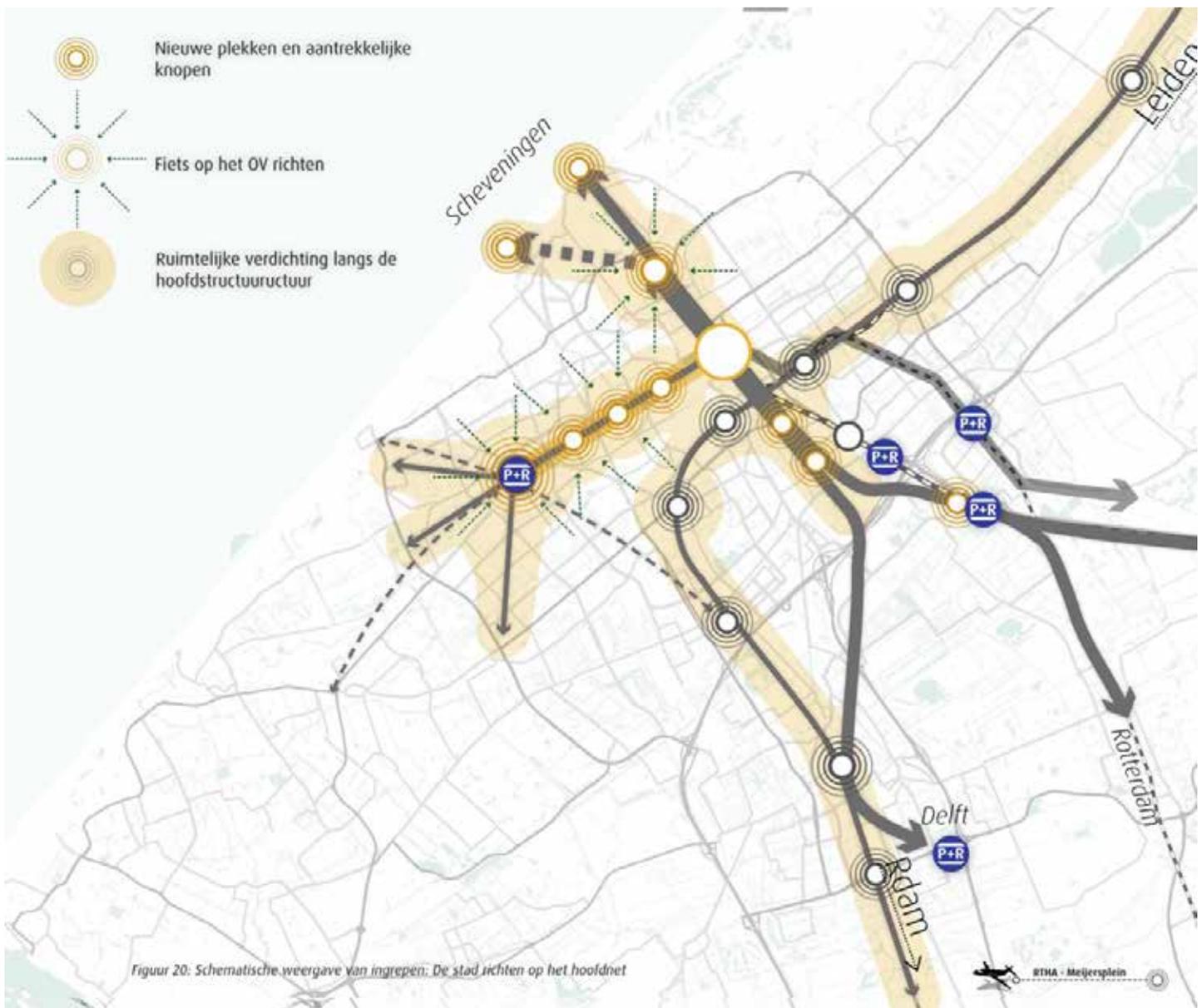


A proposed master plan for The Hague Southwest argues for as many as 10,000 new housing units and a redesigned neighborhood center on the site of the Leyweg Shopping Center, an aging relic of an early 1990s urban development initiative.

Transportation

Bastiaan ter Horst

Transportation consultant Bastiaan Ter Horst explained that 150,000 new daily car movements are anticipated in The Hague by 2040. To reduce that number and decrease travel times, Ter Horst proposed upgrading the existing Koningscorridor, the main rail artery in The Hague, and the Randstadt Old Line, which connects the Hague to Leiden and Rotterdam. The Leyenburg Corridor would be part of the same investment initiative. With these improvements, new car trips per day could be reduced to as few as 38,000, carbon emissions could be reduced by 120 million kg per year, and commute times in the Southwest could be reduced by about 30 percent on average. In this plan, the Leyenburg Corridor would terminate at Binckhorst and cost EU\$350–500,000,000. Its proposed terminal station could potentially connect to future regional light-rail infrastructure.



The Leyenburg Corridor is part of a larger plan to update mass transit in The Hague in anticipation of population growth and higher building densities in coming decades.

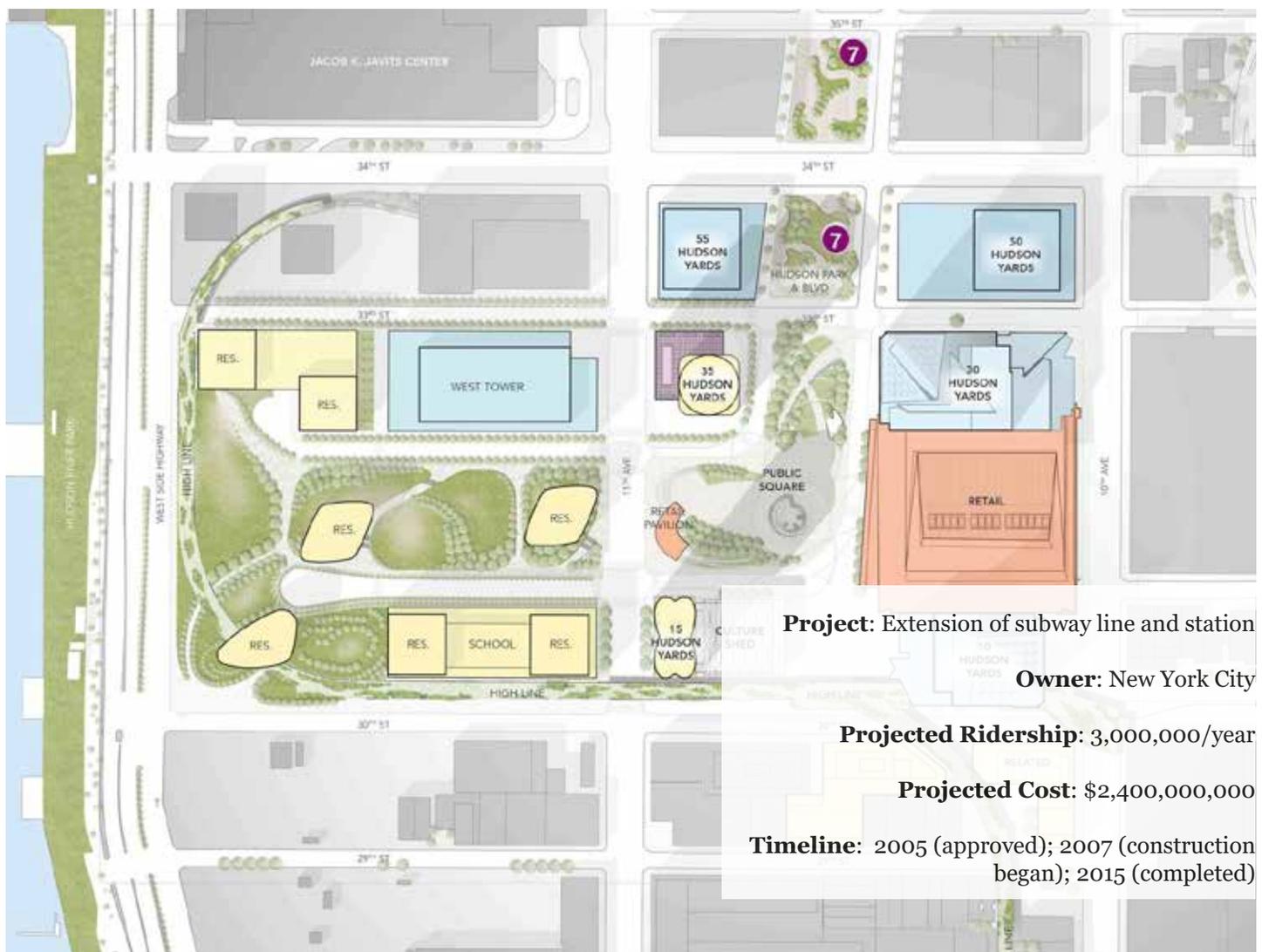
Precedent Case Studies

Thad Pawlowski, Gideon Finck, and Sam Carter presented five case studies of metropolitan transit projects around the world, and led a conversation about how and why these projects were conceived, planned, implemented, and received.

Case Study 1: Hudson Yards

In 2015, after five years of construction, the New York City Transit Authority completed the extension of the east-west No. 7 subway line, whose western terminus is now at Hudson Yards, a massive new mixed-use development along the Hudson River. Originally proposed as part of a bid for the 2012 Olympics, the subway extension project was pursued despite losing the Olympic bid because the project would nevertheless encourage housing and commercial development on a previously inaccessible and underutilized site. It was funded with a “synthetic TIF,” which allowed New York City to leverage future incremental increases in property tax revenue to receive loans for construction.

Lesson: The purpose of a project often changes, but multiple benefits ensure viability.



New York City financed an expansion of its No. 7 subway line by leveraging future income from property taxes to secure loans for construction.

Case Study Two: Curitiba Bus Rapid Transit

The Rede Integrada de Transporte (RIT), the mass transit system in Curitiba, Brazil, is used by about 85 percent of the municipal population every day. The system's central feature is its Bus Rapid Transit (BRT) infrastructure, first envisioned in the late 1960s. There are five types of bus lines: Some routes circle the city center in concentric rings and others connect intermediary neighborhoods to major stations. Some buses use designated lanes in a trinary road system that physically separates lanes for buses from car lanes with median strips. The city has more recently introduced "tube stations" where passengers purchase tickets before entering in order to expedite boarding times. The buses are owned and operated by 16 private companies, even though the infrastructure is built, maintained, and regulated by the municipal government (for example, all routes use a single, flat fare system). The system is often considered successful because private automobile usage has declined by about 30 percent since 1974, even as the municipal population doubled. Nevertheless, private automobile ownership remains high, and the city is now considering investing heavily in rail transport to meet the needs of a population that continues to grow.

Lesson: Transit systems serve different roles in a city's development. A fixed system may require modification over time.



Project: Network of privately-operated buses using specialized infrastructure

Owner: Curitiba

Projected Ridership: 2,300,000/day

Projected Cost: ~\$1,500,000/km

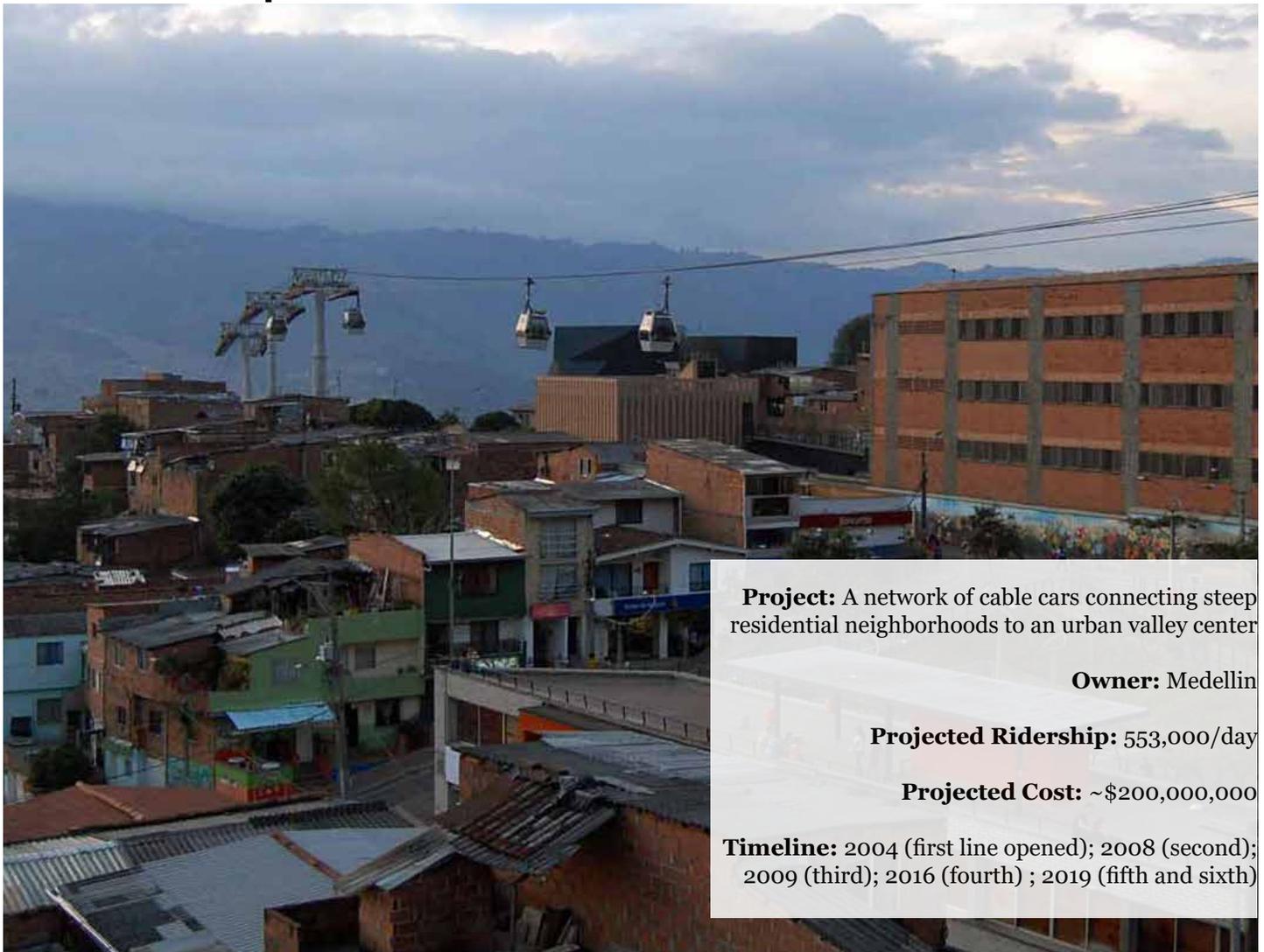
Timeline: 1960s–present

In Curitiba, Brazil, the city redesigned existing street infrastructure to create an expansive system of express bus lines, which are now used by most of the city's three million residents.

Case Study Three: Medellin Metrocable

Medellin, Colombia has a system of four cable car lines that connect mountainside residential areas to the city's main commercial district, its central valley. The lines transport about 3,000 passengers apiece in each direction. The first of these lines opened in 2004 and was designed to decrease burdensome commuter times; it was also hoped the line would mitigate high unemployment and crime rates in a high-density residential neighborhood famous for both. The latter three lines were conceived with different purposes in mind: To spur development in a low-density neighborhood, for example, or to promote tourism to a peripheral and relatively inaccessible nature park. Each of these lines was planned and built in under five years. The lines are owned and operated by the municipality and are integrated with other public amenities, such as arts and cultural institutions and programs, which are sometimes privately funded. The Metrocable is wholly integrated with other mass transit systems, most notably the central valley's pre-existing subway system.

Lesson: A successful transit project design responds to the unique conditions of a place and needs of its users.



Project: A network of cable cars connecting steep residential neighborhoods to an urban valley center

Owner: Medellin

Projected Ridership: 553,000/day

Projected Cost: ~\$200,000,000

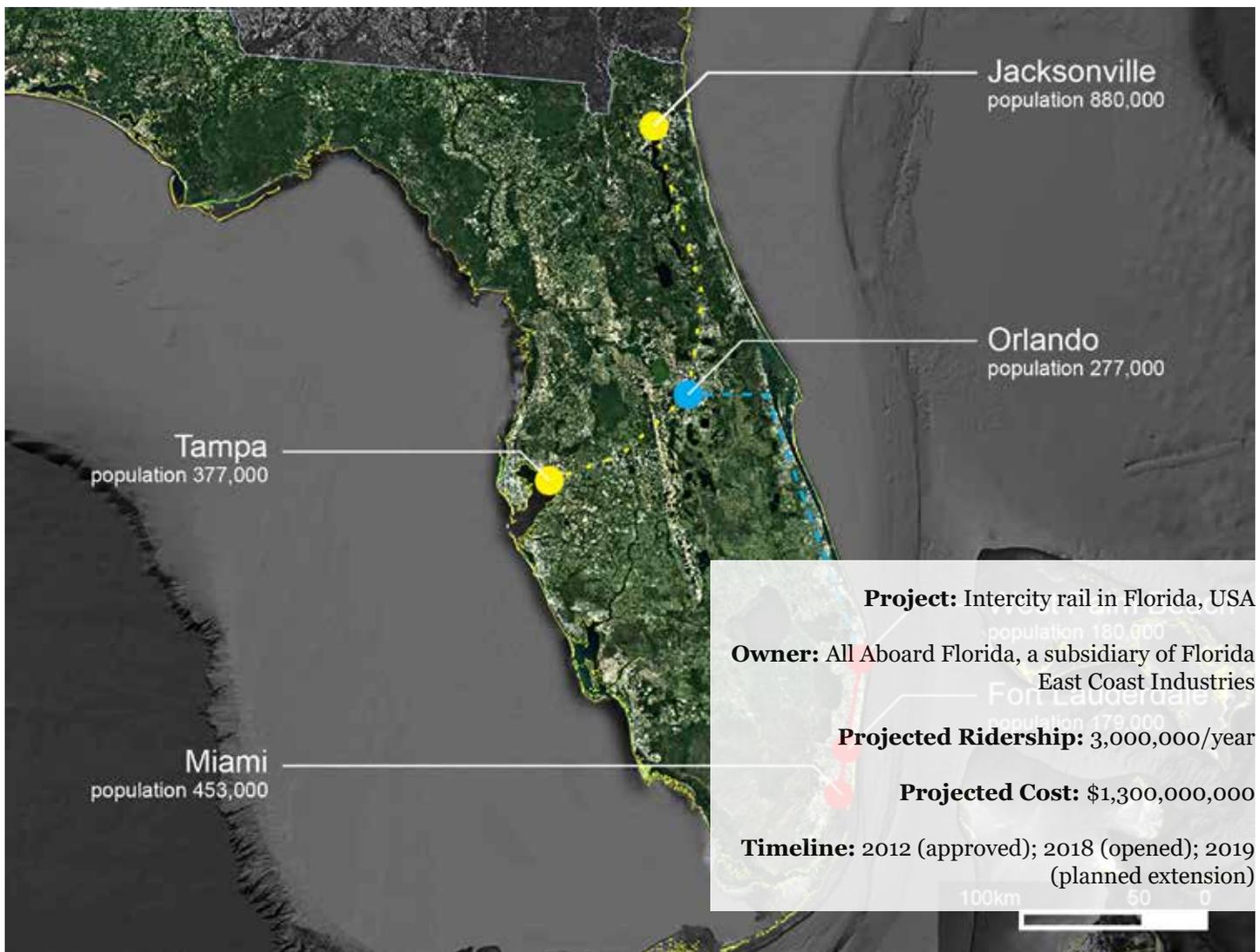
Timeline: 2004 (first line opened); 2008 (second); 2009 (third); 2016 (fourth) ; 2019 (fifth and sixth)

Medellin, Colombia has an integrated system of trains, buses, and cable cars that has spurred development and led to decreases in crime and unemployment in its mountainous residential neighborhoods.

Case Study Four: Brightline

Brightline is a new rail link serving the Florida cities of Miami, Fort Lauderdale, and West Palm Beach, with an extension to Orlando underway and an extension to Jacksonville under discussion. It is privately owned and operated by All Aboard Florida, a subsidiary of Florida East Coast Industries. Brightline provides a more comfortable, more expensive, and quicker alternative to Tri Rail, an existing publicly-managed rail line. Part of the Brightline route uses existing Florida East Coast Railway tracks that are shared with freight rail. As Brightline upgrades these tracks, it's possible that Tri Rail will begin using them as well. In order to extend its reach to Orlando, Brightline hoped to lay new tracks along a public right-of-way along Florida's Beachline Expressway, but after determining that the space was too narrow, Brightline reached a land deal with adjacent landowners in 2013.

Lesson: private transportation can serve dynamic public need.

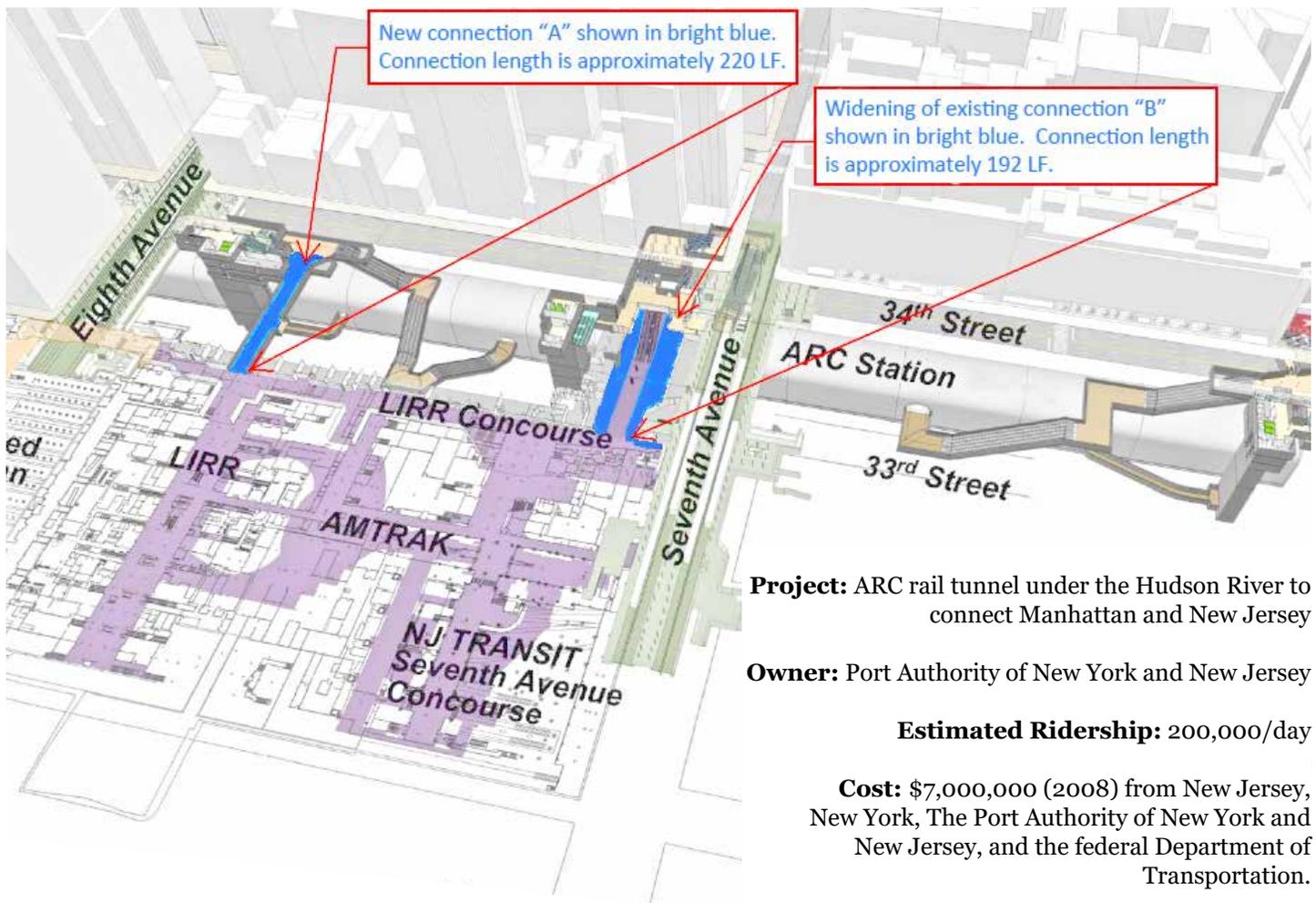


A privately funded regional train system in Florida is expected to relieve traffic congestion between major cities.

Case Study Five: Access to the Region's Core (ARC)

The U.S. Federal Transportation Administration granted funding to the state of New Jersey in 2009 to build a new rail tunnel from Newark to Manhattan to supplement an existing 100-year-old tunnel under the Hudson River. The tunnel would be operated and partly funded by the interstate Port Authority of New York and New Jersey, and would serve New Jersey Transit commuter lines. Despite clearing all technical and environmental requirements, and securing all necessary funding, the project was vetoed by New Jersey Governor Chris Christie, who worried that the project would hurt his credibility as a fiscal conservative as he prepared to run for national office.

Lesson: Without a broad base of public support, even the most vital and rational projects are politically vulnerable.



Timeline: 2008 (approved); 2009 (canceled)



Research Questions

The participants summarized key emergent issues into a set of questions to guide the Leyenburg Corridor project team.

- 1. Can transit change perceptions?**
- 2. Can it solve social problems?**
- 3. Who should own the project?**
- 4. How does transit reshape physical and institutional borders?**
- 5. How to define the limits/scale of the project and manage complexity?**
- 6. How do you select station locations (capture and disperse value, pick winners and losers)?**
- 7. How do you define your constituency?**
- 8. What models of cost-benefit analysis or “criteria analysis” can be applied to transit projects? What models can be used to measure the performance of the built project?**



Table two considered how a new train corridor might be planned to ease access to Westland, the agricultural center of the Netherlands.



Table two workshop participants

Interviews Overview

In a series of interviews, professors and researchers from The Hague University and TU Delft discussed academic work that could be relevant to Leyenburg Corridor planning. The academics we spoke with study various topics, including ways to involve citizens in urban planning processes, and construction technologies and implementation practices. Some of their research projects can be useful to The Hague as it considers ways to include Southwest residents and neighborhood leaders in the planning of the Leyenburg Corridor.

Following these interviews, we met Peter Hennephof, the Municipal Secretary of The Hague, whose support for an interdisciplinary approach to mass transit in Escamp is essential to the success of the project.

Interview Participants:

Frances Brazier, Professor of Engineering Systems Foundations, and Tina Comes, Associate Professor and Delft Technology Fellow on Designing Resilience at TU Delft
Technological components integrated in physical infrastructure projects to share information and feedback across sectors

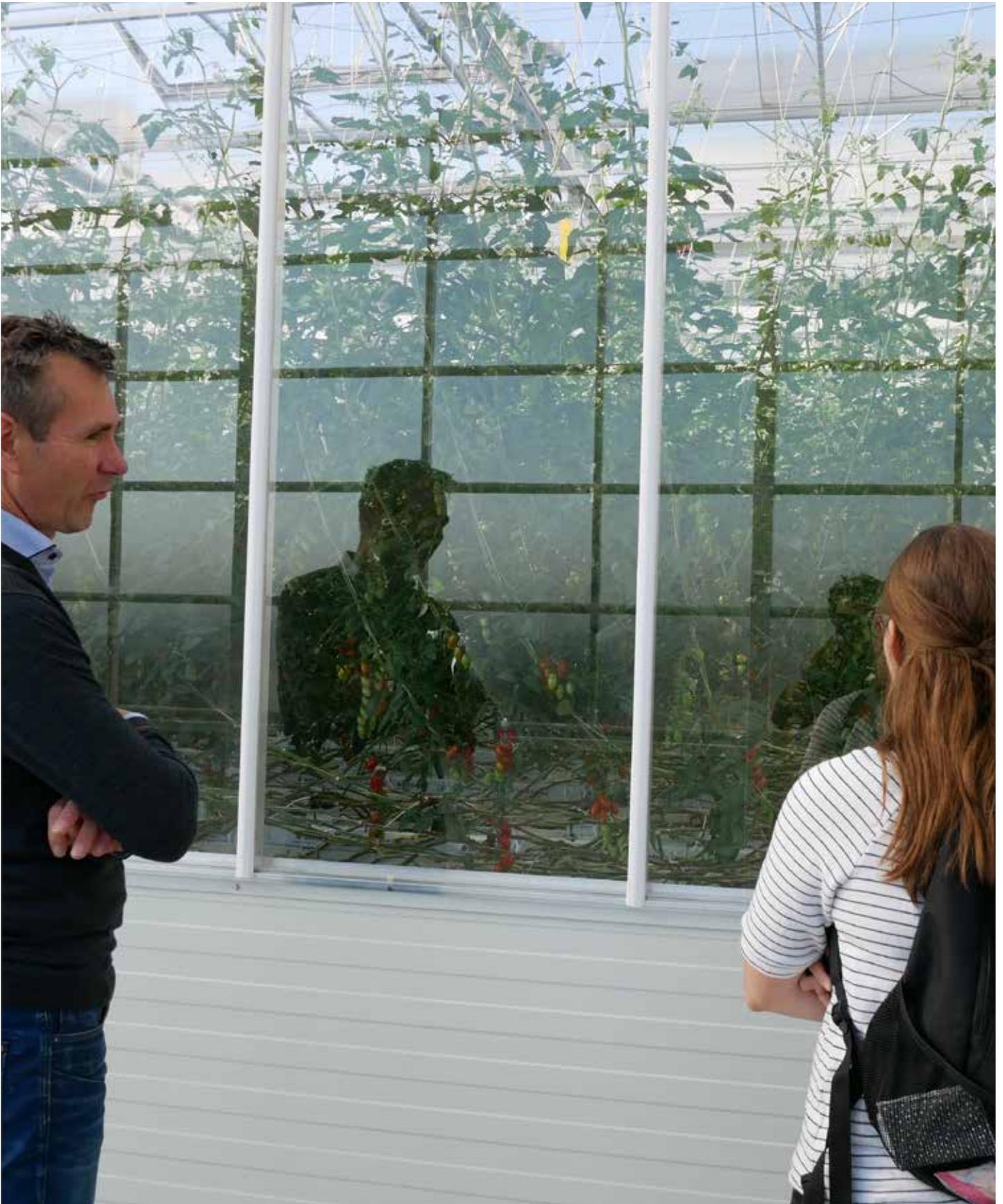
Erwin Cardol, Director of the World Horti Center
Future development of horticultural and agricultural tech industries

Peter Hennephof, City Manager of The Hague
Interdisciplinarity in early stage planning

Jos van Leeuwen, Professor of Interaction Design, and Arnold Jan Quanjer, Teacher of Interaction Design at The Hague University
Interactive visualizations as tools for community participation in project design

Niek Mouter, Faculty of Technology, Policy and Management, TU Delft
Tools for participatory planning and public engagement during the planning process

Rob Ruts, Quartermaster of Urban Innovation Laboratories at The Hague University
Neighborhood convenings, mapping and storytelling workshops as experiments in inclusive planning



The World Horti Center in Westland is part school, part showroom, and part laboratory dedicated to the study and development of emerging horticultural and agricultural technologies.

Niek Mouter, Faculty of Technology, Policy and Management, TU Delft

Niek Mouter is an economist at the Faculty of Technology, Policy and Management at TU Delft. He is interested in participatory budgeting, specifically how people think differently about personal versus collective spending. Through his research, he found that when it comes to transportation decisions, people are more likely to approve personal spending to save time in transit than public investment to similar ends.

Mouter has developed a tool designed to make government spending more comprehensible to the public. He writes surveys that are mailed to residents who may be affected by a proposed civic project. These explain the scope of the project, its intentions, and costs compared to other civic projects that could be paid for with the same amount of money. Participants are then asked to vote for their preferred options. They are also allowed to “donate” their vote to other people they think are either more qualified or more directly affected by the outcome. The tool has not been used to make binding decisions (nor do participants want it to be used this way), but rather to raise political pressure on public officials and ease communication between government and residents.

Lesson: Participatory planning tools can reveal discrepant priorities and encourage trust.

Rob Rutz, Quartermaster of Urban Innovation Laboratories, The Hague University

Rob Rutz is an activist philosopher, artist, and director of Innolab. At the moment, his primary research is focused on policing, and creating avenues of communication between police and policed. He is interested in conflict resolution and the organized processes that bring communities together. According to Rutz, cities are fundamentally spaces of conflict. Community engagement therefore should enable people to cope with struggle. The term “community,” according to Rutz, should include teachers, employees, civil servants, entrepreneurs, and other local stakeholders, as well as residents. He invites community members to his labs and believes his workshops could provide a resource to Escamp and The Hague to involve a wide range of community members in public projects.

Lesson: Communication should include everyone who shapes civic life, not just residents and civil servants.

Jos van Leeuwen and Arnold Jan Quanjer, Professors of Interaction Design, The Hague University

Jos Van Leeuwen and Arnold Jan Quanjer are interested in how virtual reality visualizations and simulations can be used in public engagement processes. According to Klaske Hermans, The Hague requires public engagement during the planning of public projects, but exactly how to engage the public is a matter of discretion. In a recent park upgrade project, Hermans’ office used virtual reality tools to solicit feedback from residents in the park’s vicinity on a few design options for park facilities. After the visualizations were made public, residents were asked to vote for their favorite designs and 1,400 residents responded (out of 11,600 solicited).

Lesson: Visualizations are powerful communication tools that can be used to clarify civic projects.

Frances Brazier and Tina Comes, Professors of Engineering at TU Delft

Frances Brazier and Tina Comes research public engagement in civic infrastructure projects, and how signage and other modes of communication establish trust between citizens, civic institutions, and government.

Lesson: Effective project planning requires clear communication between stakeholders.

Erwin Cardol, Director of the World Horti Center

The World Horti Center in Westland, the Netherlands houses three integrated institutions: a horticultural/agricultural trade school, a showroom for agricultural technology, and greenhouse laboratories. The institutional focus is not on traditional agricultural production, but on a future-oriented vision of horticulture as biotech. The 1,200 students who study at the Horti Center are local commuters, but agro-tech industries are becoming increasingly global. As horticultural technologies progress, the Netherlands may be poised to lead the world in horticultural knowledge and technological development, if not in agricultural production.

Lesson: Connecting Southwest to schools and jobs in Westland requires anticipating changes in the agricultural industries.

Peter Hennephof, Municipal Secretary of The Hague

Peter Hennephof is interested in examining international case studies to better understand when and how infrastructure projects benefit vulnerable communities, and applying those lessons to The Hague Southwest. To do so, he hypothesizes that an inter-agency task force is necessary to “break the silos” of government. He believes that there is funding and political support available for such projects, as evidenced by large urban development initiatives in Rotterdam. He would like the Center for Resilient Cities and Landscapes and 100 Resilient Cities to convince him and his colleagues of the value of a “resilience approach” to transportation planning by finding examples of coalition efforts in similar projects elsewhere.



Synthesis

Inclusive, forward-looking planning will enable the Leyenburg Corridor to facilitate a more sustainable future for residents of Escamp and the Southwest.

When we toured Escamp and the Southwest, the people we met hardly spoke about transportation. They were eager to talk about a number of other urgent stresses: a lack of health services; loneliness; a bad reputation; segregation; unemployment; domestic problems hidden from public view; and more. Nevertheless, it was understood in the workshop that the planning of the Leyenburg Corridor could shape the future development of the area, from the quantity and type of housing that will be built to the socio-demographic composition of its population.

Two concerns underlie many of the conversations that emerged in the workshop and subsequent interviews with researchers. First, any transportation corridor will not be completed for about 20 years, and the Southwest's current vulnerabilities and opportunities may change by then. This concern was reinforced at the World Horti Center. In the workshop, there was quite a bit of interest in using the Leyenburg Corridor to increase access to Westland, on the basis that a Westland connection would provide employment opportunities for unskilled laborers, thus addressing unemployment in Southwest and demand in Westland. But upon visiting the Horti Center, it became clear that the most important opportunities in Westland 20 years from now may be educational opportunities or training for skilled jobs, rather than unskilled labor. We heard repeatedly that there are no nearby opportunities for Southwest teenagers and young adults to build careers and stay in the area. Bringing the Southwest closer to Westland, to the educational and future career opportunities available in the high-tech horticultural industries of the future, may indeed prove to be an even stronger proposition than previously assumed.

The second concern that came up throughout our visit was that Southwest residents feel marginalized, and there is a perception problem both in and out of the area. This poses a serious risk that any project, however well intended, will be perceived by the Southwest residents as yet another example of the city ignoring their real needs. There is no shortage of leaders and organizers within the Southwest, as evidenced by the many activists that we met on Monday, from the organization of primary school mothers to upcycling entrepreneurs, to religious leaders and community organizers.

Because the Leyenburg Corridor is still in a nascent planning phase, there are many opportunities to include residents and community members in the planning process to ensure that in this case, the residents and city alike are satisfied that the planning of the Leyenburg Corridor is inclusive.

Neighborhood stresses:

- Lack of health services**
- Unemployment**
- Isolation**
- Domestic problems**

Concerns:

- Project length**
- Demographic uncertainty**
- Economic uncertainty**
- Neighborhood perception**

Next Steps: Case Study Seminar Research

CRCL will compile a report of international transit-oriented development projects. These case studies will be studied by teams of graduate students at Columbia University, who will gather critical research, including primary-source interviews, about the processes by which transit projects have been planned and implemented. For each precedent, students will investigate:

- Why the project was proposed
- How alternatives were (or weren't) considered
- How the public was (or wasn't) engaged in the planning process
- How projects are financed and built in various jurisdictional contexts
- How the relative success of the project has been evaluated

Furthermore, students will choose proposed projects that share some contextual similarities to their precedents, and assess how the lessons learned from built projects can inform the planning process.

Research outline:

1. Built Project

1.1 Context

- Facts and figures comparing study area to its regional environment
- Map of transit environment

1.2 Overview

- Project location
- Project extents
- Summary of project definition, purpose, owner, cost, and timeframe
- Facilitating environment
- Project delivery chart
- Project timeline
- Project impacts

1.3 Lessons learned

- Questions for primary sources
- Conclusions from interviews

2. Proposed Project

2.1 Context

- Facts and figures comparing study area to its regional environment
- Map of transit environment
- Social/demographic geographies
- Historic changes in study area
- Shocks and stresses in study area
- Study area's Adaptive Cycle location

2.2 Overview

- Project location
- Project extents
- Summary of project definition, purpose, owner, cost, and timeframe
- Facilitating environment
- Proposed delivery chart
- Proposed timeline
- Possible impacts

2.3 Resilience Assessment and Recommendations

- System resilience
- Community resilience
- Ecological resilience
- Recommendations

Case Study Cities and Student Teams

Accra Bus Rapid Transit (BRT)

Darkar BRT

Boying Li and Jialin Zhai

Amsterdam Metro North-South Line

Copenhagen - Nordhavn Extension

Savannah Ryder and Etienne d'Anglejan

Boston Fairmount Line

Michael Montilla and William Reis

Dar es Salaam Bus Rapid Transit (DART)

Nairobi Proposed MTS (BRT)

Claire Yang

Guangzhou-Shenzhen-Hong Kong Express Rail Link (GHS
Rail Link)

*Shanghai-Jiaxing-Ningbo Express Rail Link (SJM Rail
Link)*

Zheyu Liu and Luyun Shao

Hudson Yards

Brooklyn-Queens Connector

Yue Han and Hana Dunston

Medellín Metrocable and Master Plan

Argelis Gonzalez Samot and Alexandros Balili

Mexico City Metrobus

Guadalajara Light Rail System

Shivali Gaikwad

Mombasa-Nairobi Heavy Rail

Savannah Wu and Yuan Gao

Seattle LINK

Denver Light Rail

Da Wu and Junteng Zhao

Tsukuba Express (Japan)

Beijing-Xiongan Express Line (China)

Danting Liu and Shulin Zhang

Washington Dulles Corridor Metrorail

Laguardia AirTrain

Cheryl Lim and Eunjee Son