Design for Conspicuous Transit

Peter Bain
Virginia Commonwealth University
Design for Conspicuous Transit

Peter Bain
Submitted to the faculty of the School of the Arts
at Virginia Commonwealth University
in partial fulfillment of the requirements for the degree
Master of Fine Arts in Design: Visual Communications.

Design for Conspicuous Transit
Peter Bain

Bachelor of Science, Carnegie-Mellon University, Pittsburgh, PA. May 1985
Virginia Commonwealth University, Richmond, VA. May 2009

John DeMao, Primary Advisor
Associate Professor
Department of Graphic Design

John Malinoski, Secondary Advisor
Associate Professor
Department of Graphic Design

Dr. Morton Gulak, Reader
Associate Professor, Urban Studies and Planning,
L. Douglas Wilder School of Government and Public Affairs

Matt Woolman
Chairman, Associate Professor
Department of Graphic Design

Dr. Richard E. Toscan
Dean, School of the Arts

Dr. F. Douglas Boudinot
Dean, School of Graduate Studies
## Passenger Comfort

<table>
<thead>
<tr>
<th>Route Number</th>
<th>6:30 PM</th>
<th>7:00 PM</th>
<th>7:30 PM</th>
<th>8:00 PM</th>
<th>8:30 PM</th>
<th>9:00 PM</th>
<th>9:30 PM</th>
<th>10:00 PM</th>
<th>10:30 PM</th>
<th>11:00 PM</th>
<th>11:30 PM</th>
<th>12:00 AM</th>
<th>12:30 AM</th>
<th>1:00 AM</th>
<th>1:30 AM</th>
<th>2:00 AM</th>
<th>2:30 AM</th>
<th>3:00 AM</th>
</tr>
</thead>
</table>

## Passenger Criteria

<table>
<thead>
<tr>
<th>Route Number</th>
<th>6:30 PM</th>
<th>7:00 PM</th>
<th>7:30 PM</th>
<th>8:00 PM</th>
<th>8:30 PM</th>
<th>9:00 PM</th>
<th>9:30 PM</th>
<th>10:00 PM</th>
<th>10:30 PM</th>
<th>11:00 PM</th>
<th>11:30 PM</th>
<th>12:00 AM</th>
<th>12:30 AM</th>
<th>1:00 AM</th>
<th>1:30 AM</th>
<th>2:00 AM</th>
<th>2:30 AM</th>
<th>3:00 AM</th>
</tr>
</thead>
</table>

## System's Features

### Rating

<table>
<thead>
<tr>
<th>Route Number</th>
<th>6:30 PM</th>
<th>7:00 PM</th>
<th>7:30 PM</th>
<th>8:00 PM</th>
<th>8:30 PM</th>
<th>9:00 PM</th>
<th>9:30 PM</th>
<th>10:00 PM</th>
<th>10:30 PM</th>
<th>11:00 PM</th>
<th>11:30 PM</th>
<th>12:00 AM</th>
<th>12:30 AM</th>
<th>1:00 AM</th>
<th>1:30 AM</th>
<th>2:00 AM</th>
<th>2:30 AM</th>
<th>3:00 AM</th>
</tr>
</thead>
</table>

### Information

- **Route Information**
  - **Direction:** Westbound
  - **Capacity:** 4
  - **Frequency:** 5
  - **Load Factor:** 50-60%

- **System Features**
  - **Telephone Information Number:** 911
  - **Telephone System:** 6420
  - **Website:** www.godot.ca.gov
  - **Twitter:** @gtrc

### System Meeting Standards

- **Load Factors:** 75%
- **Load Distribution:** Marginal (60% to 80%)
- **Load Distribution:** 1-2, 19, 24
- **Load Distribution:** 64, 66
- **Load Distribution:** 28, 26
- **Load Distribution:** 38, 37
- **Load Distribution:** 40, 39
- **Load Distribution:** 52, 51
- **Load Distribution:** 50, 49
- **Load Distribution:** 48, 47
- **Load Distribution:** 46, 45
- **Load Distribution:** 44, 43
- **Load Distribution:** 42, 41
- **Load Distribution:** 40, 39
- **Load Distribution:** 38, 37
- **Load Distribution:** 36, 35
- **Load Distribution:** 34, 33
- **Load Distribution:** 32, 31
- **Load Distribution:** 30, 29
- **Load Distribution:** 28, 27
- **Load Distribution:** 26, 25
- **Load Distribution:** 24, 23
- **Load Distribution:** 22, 21
- **Load Distribution:** 20, 19
- **Load Distribution:** 18, 17
- **Load Distribution:** 16, 15
- **Load Distribution:** 14, 13
- **Load Distribution:** 12, 11
- **Load Distribution:** 10, 9
- **Load Distribution:** 8, 7
- **Load Distribution:** 6, 5
- **Load Distribution:** 4, 3
- **Load Distribution:** 2, 1

### Current Fare Structure

- **Current Fare Structure:** Meets standard

### Route Guide

- **Route Guide:** Can be confusing
- **Phone Number:** 911
- **Website:** www.godot.ca.gov

### Telephone System

- **Telephone System:** 6420
- **Website:** www.godot.ca.gov
- **Twitter:** @gtrc

### System's Features

- **Telephone Information Number:** 911
- **Telephone System:** 6420
- **Website:** www.godot.ca.gov
- **Twitter:** @gtrc

### System Meeting Standards

- **Load Factors:** 75%
- **Load Distribution:** Marginal (60% to 80%)
- **Load Distribution:** 1-2, 19, 24
- **Load Distribution:** 64, 66
- **Load Distribution:** 28, 26
- **Load Distribution:** 38, 37
- **Load Distribution:** 40, 39
- **Load Distribution:** 52, 51
- **Load Distribution:** 50, 49
- **Load Distribution:** 48, 47
- **Load Distribution:** 46, 45
- **Load Distribution:** 44, 43
- **Load Distribution:** 42, 41
- **Load Distribution:** 40, 39
- **Load Distribution:** 38, 37
- **Load Distribution:** 36, 35
- **Load Distribution:** 34, 33
- **Load Distribution:** 32, 31
- **Load Distribution:** 30, 29
- **Load Distribution:** 28, 27
- **Load Distribution:** 26, 25
- **Load Distribution:** 24, 23
- **Load Distribution:** 22, 21
- **Load Distribution:** 20, 19
- **Load Distribution:** 18, 17
- **Load Distribution:** 16, 15
- **Load Distribution:** 14, 13
- **Load Distribution:** 12, 11
- **Load Distribution:** 10, 9
- **Load Distribution:** 8, 7
- **Load Distribution:** 6, 5
- **Load Distribution:** 4, 3
- **Load Distribution:** 2, 1
**Table of Contents**

Abstract 6
Introduction 13
Problem Statement 21
Process 34
Evaluation and Future Directions 50
Bibliography 57
Digital Media 61
Consult "Express" bus schedule.
Abstract
My creative project explores design for transit advocacy; aimed at shifting a car-dependent society into one where transit helps meet climate change, energy, and land-use challenges. It incorporates my research into aspects of designing for transit, an understanding of urbanism in Richmond and New York, and an appreciation of planning.
Surface parking in downtown Richmond, opposite; West Broad Street in Henrico County
more sustainable activities

urban
tendency toward income-mixed
public spaces
compact residences
close to neighbors
energy-efficient
leads to
higher-density land use
well-suited to public transit
shorter distance between work and home
encourages

transportation
pedestrian
bicycle
public transit
ferry
bus
commuter rail
light rail or streetcar
subway
car
taxi

suburban
tendency toward income-separated
public spaces
expansive residences
far from neighbors
energy-inefficient

if cars are dominant, results in
greenhouse gas emissions
road congestion
expanded road-building and highway costs
lower-density land use, sprawl development

shifting from cars to transit
reduces energy used for transportation
reduces greenhouse gas emissions
reinforces higher-density land use
Introduction

The economic shock of high gasoline prices in the summer of 2008 and the realization that the United States is dependent on foreign oil were factors in that November’s presidential election. The impact of energy sources and the cost of poor energy efficiency were elevated to public concerns.

Added to this mix are continuing patterns of sprawling residential and commercial development that neglect already built-up urban areas, requiring the automobile for all daily activities. This leads to expensive new highways and increased congestion on existing roads as people have no choice other than to drive. Global climate change, driven in a significant proportion by our reliance on the automobile, is further confirmation that these practices are unsustainable.

Traditional urban areas and new higher-density mixed-use developments with walkable neighborhoods are increasingly recognized as simultaneously economically vibrant, socially beneficial, and environmentally responsible. They encourage public transportation for both residents and workers, since the automobile is both space-inefficient and polluting. The electric car is not a sufficient solution, since it will still enable poor utilization of land, continue the loss of farmland, reduce potential nature reserves, parks or recreation areas, and require similar investments in highway infrastructure. In addition, most electric power in the United States is now generated from coal, furthering greenhouse gas production.

An expansion of current public transit networks is required if the Richmond region, like other United States cities, hopes to grow and address the challenges of efficient land use, energy, and unsustainable dependence on the automobile. The history of transportation in Richmond also provided a stimulus to my creative project, since the city was home to the first successful electric trolley system in North America. I also learned that presently in Richmond and suburban Henrico County, surface parking takes up a large proportion of open space. Downtown Richmond has a large number of vacant or under-utilized multi-story buildings, and has suffered from the demolition of buildings for parking. Higher utilization of transit and increased service are important for the commercial and residential revitalization of Richmond as well as the long-term viability of already developed areas in the region, notably western Henrico County along the West Broad Street corridor.
R.R. TRAINS AND SUBWAY
Train station details: Baltimore; Hoboken, New Jersey; Richmond
Asked what they miss about their old lives
in New York, the couple pause.

Our friends, Ms. Baumann said.

I miss our specific doctors.
I miss the mass transit.

The olive oil, Mr. Hopkins added.

That’s not much, Ms. Baumann said.
Problem Statement

My creative project explores the use of design to inform and potentially change behavior. I chose the area of designing for transit, since I understand transit to be a solution to the challenges discussed in the introduction. Design for Conspicuous Transit addresses not just transit users and transit systems, but the universe of potential riders and the context in which transit may, or may not, be available.

In conversation with a fellow graduate student, I learned that he had never understood the local bus system where he lived before coming to Richmond. I myself had used buses sporadically in New York City, primarily because I felt the subway was faster, and the bus system seemed more complicated, harder to understand, and less efficient.

My experience as a resident of New York City was of a transit system that had a diverse ridership composed of working-class and middle-class users, and even wealthy patrons in certain locations, from a mix of ethnic and racial groups. When I took transit in Richmond I observed that bus riders were largely African-American and appeared primarily working-class. One explanation was the economic and racial make-up of the city of Richmond, in contrast with its surrounding counties. Yet a
local GRTC Transit System survey indicated that 49% of its riders are from households with a car, but find transit more attractive based on cost or convenience. One example would be a household with two working adults sharing a car.

Still, the income segregation in Richmond was clear between transit riders and the more affluent commuters I saw driving to work. At a weekend tour of Richmond sponsored by the Partnership for Smarter Growth, I spoke with a lawyer who said he rode the subway to work when he lived on the Upper East Side of Manhattan, but drove from The Fan to his current job in downtown Richmond. Another example was a Henrico County official’s public rejection of bus service as part of a regional transportation proposal. In the VCU and Richmond community I heard of fears of crime on the bus, and that Chesterfield County had actively opposed transit service linking its neighborhoods with the city and downtown areas. Given a past history of polarization, it can be presumed that these behaviors and beliefs are driven by both economic and racial biases. Similarly, I have been told that in Houston, Texas the bus system was viewed in wealthy neighborhoods as a means of transportation for domestic workers.

Taken together, I concluded that a poor understanding both transit benefits and the negative effects of automobile dependence, coupled with unfavorable perceptions and missing information, were all impediments to drivers considering transit as an alternative or even supporting transit service in their community. While biases and stereotypes like those described have most probably been weakening, their origins and continuing ability to distort understanding of transit are not inconsequential. It is outside the scope of my creative project to analyze the probable origins of such bias, such as the consequences of integration in the South, nor is it possible to propose solutions for unresolved social or economic issues. Instead I have selected graphic design problems that clearly affect transit systems and services.

I analyzed the links between graphic design and transit to better understand where design plays a meaningful role in information and advocacy. These were organized into three categories: transit visual identity and applications; wayfinding and transit information; and transit structures and graphic design.

The first category, visual identity for transit, includes one of the first organizational identities, that of the London Underground. The third category
combines graphic design with environmental design, architecture, and industrial design. The built environment, including transit stations and street furniture such as bus shelters, is part of this category, along with transit vehicles. The second category was selected for my creative project since graphic design plays such a critical role in the understanding and use of public transit. Transit typically requires each rider to locate the system, determine his or her journey, and undertake travel based on information provided or learned through experience.

The Richmond GRTC bus stops oriented me towards one particular design for transit sub-problem. Unlike other systems, GRTC bus stop signs only mark the stop location. They typically do not indicate route, schedule, or display a system map, as do European systems, or those in New York and Washington D.C. While GRTC has announced that it intends to test new signs that are more informative, it has withdrawn from circulation the system-wide ride guide it used to offer, only provides maps for individual routes, not destinations, and does not post a printed system map on any of its buses. Senior management at GRTC are pursuing delivery of data to mobile devices as a future answer, which offers no solution for the present system.

In conversations with people on the VCU Monroe Park campus, it became clear that the majority were unaware of the transit service currently available. This community and Monroe Park area residents represent a potentially large pool of transit users, given the neighborhood’s location, frequency of service, and university connection. The meager resources GRTC provides convinced me that designing information for riders was critical to changing perceptions of transit. The design problem this presented is what kind and form of information would encourage this pool of drivers to consider taking transit.

Another insight was that drivers do not usually consider walking a valid alternative. Much of Richmond was laid out before widespread adoption of the automobile, thus walking was expected and common. While sidewalks have changed over time, their pedestrian capacity continues. This component is important, since urban transit systems are built on top of a pedestrian model. They require patrons to walk from their point of origin to transit, and from transit to their final destination. Riders with disabilities use a transit system similarly. Finding ways to encourage walking through graphic design is a necessary sub-problem, as is reinforcing the conception of cities such as Richmond as a collection of walkable neighborhoods.
Several books were influential in this part of my creative project and provided prior design examples, including *The Image of the City; Wayfinding, People, Signs, and Architecture*; and *Maps: A Visual Survey and Design Guide*. The pedestrian wayfinding system developed for Bristol, England, and transit maps from London and New York also shaped my understanding of mapping and transit.

While the Monroe Park area already has transit service, locations that have little or no transit service at present are far more common in the United States. One Virginia example is Henrico County. As a second component of my creative project, I chose as a design problem developing a visual presentation that makes the case for transit as an alternative to the car. Given the need to explain problems arising from automobile dependence, and a desire to engage in advocacy, a presentation had the advantage of being a concise expression of ideas.

The first sub-problem was formulating and selecting the most important and persuasive arguments for transit. The sub-problems that followed included visual representation of the arguments for transit versus the car. Convincing people to consider transit as an alternative appeared to require, at a minimum, ways to visualize transit where it has never existed. The representation of transit modes, for example bus versus light rail, posed another sub-problem.

Often architects and urban planners produce maps, tables, and renderings to support transit and transit-oriented growth without visually linking them together. Images of urban projects or mixed-use, transit-oriented developments, whether completed or proposed, usually demonstrate their various components. The result is typically a photo or architectural rendering, showing pedestrians, transit stations or vehicles, buildings, and street-level shops.

In contrast, the Eames Office film “The Expanding Airport” is an example of a coherent, visually persuasive presentation, using abstraction to represent transportation. The film “An Inconvenient Truth,” even years after its initial release, provided an alternative model for the use of imagery as rhetoric. Throughout the film still images and animation are used to dramatize the verbal and numerical arguments presented by Al Gore. I also needed to take into consideration my own drawing skills in creating a visual vocabulary.

Transit agencies and advocates themselves have been producing animations and related presentations. “Why I am Drawn to Ride Cap-Metro,” “The
“Human Scale,” and “350.org” were most influential. Reading blog posts on www.baconsrebellion.com and news articles on current transit issues, such as the Dulles Metro extension and Purple Line in the Washington, D.C. area, provided evidence of the variety of public opinion on taxes and funding for transit, and the depth of emotional attachment on the part of car owners. Together, the sub-problems of script, narration, and soundtrack are integral to the presentation design.

Lastly, one general sub-problem I encountered was how to understand and incorporate my creative project within the larger context of design and design research. While I was already familiar with John Chris Jones's *Design Methods*, Klaus Krippendorff's concept of human-centered design, which he developed in *The Semantic Turn* and subsequent writings, provided a vantage point for my efforts.
**Business supports taxes for transit**

Groups urge increases to raise $1 billion for Virginia infrastructure

By JEFF E. SCHAPIRO  
TIMES-DISPATCH STAFF WRITER

Big business wants Virginia to spend big bucks on transportation.

Twenty-one groups, including chambers of commerce, and construction, real estate, insurance and road-building organizations, are urging Gov. Timothy M. Kaine and the General Assembly to finance highways and mass transit with $1 billion in new sales or gasoline taxes, or a combination of the two.

"We believe the commonwealth's transportation infrastructure is a critical component of its economic success and the quality of life of all Virginians," the groups -- joined by four health-care, local government and public-safety associations -- said in a letter yesterday to Kaine and lawmakers.

Pressure from the business and professional sector for a remedy to the state's continuing transportation-financing dilemma is expected to intensify in the run-up to next month's special session of the General Assembly.

However, the letter appeared to strengthen the resistance of anti-tax Republicans who control the House of Delegates and favor only tinkering with a regional road-financing program to comply with a February ruling by the Virginia Supreme Court.

"They're supposed to be the voice of business," said House Speaker William J. Howell, R-Stafford, noting that the tax-increase appeal had not been backed by small business. "I don't see how it helps business to increase their costs."

Kaine, expected to announce a new transportation-finance plan by Monday followed by town hall-type meetings Tuesday and Thursday in traffic-clogged Northern Virginia and Hampton Roads, welcomed business' support.

"The governor is taking input from all interested parties," Kaine press secretary Gordon Hickey said.

Also yesterday, Kaine discussed a fiscal fix for highways and mass transit in a private meeting with about 12 Senate Democrats, including Majority Leader Richard L. Saslaw of Fairfax and Mary Margaret Whipple of Arlington, head of the Democratic caucus.

"We're going to be talking about the House Democrats to try to fashion a plan, and we hope our Republican colleagues will be cooperative and helpful as well," said Sen. A. Donald McEachin, D-Henrico, as he left the hourlong session.

The Commonwealth Institute, a liberal think-tank that correctly projected a $1 billion shortfall in the state budget, said it would urge legislators to consider credits for low-income Virginians to offset the cost of a higher sales tax. Some Democrats are circulating a similar proposal.

The business groups did not recommend a specific increase in the gasoline tax, which last was raised in 1986 to 17.5 cents per gallon. But the organizations backed 1-percentage-point increase in the sales tax, pushed to 5 cents on a dollar in 2004 under Gov. Mark R. Warner.

They also said the legislature should bring tax-collecting powers for Northern Virginia and Hampton Roads authorities to finance regional improvements in line with the Virginia Supreme Court's edict.

"Analysis of Virginia's severe transportation-funding needs has been ongoing for over a decade," the letter said. "All of the needs are great, and the time for action is now."  

Contact Jeff E. Schapiro at (804) 649-6814 or jschapiro@timesdispatch.com.

---

**Richmond questions proposed transit authority**

Tuesday, Oct 07, 2008 - 12:35 AM

By DAVID RESS  
TIMES-DISPATCH STAFF WRITER

Richmond political leaders last night had tough questions about a proposed new regional authority that would have the power to raise taxes to meet the area's long-term transportation needs.

Mayor L. Douglas Wilder and several City Council members, at an unusual joint meeting to hear a presentation on the new authority, said they are concerned that the new authority seems to have little focus on mass transit.

They said they support more regional cooperation, and many said they like the idea of a regional authority in concept. But most wanted more details about the authority's powers and plans.

"There has not been the best relationship between the city and the counties," Wilder said, citing limited suburban bus service and an attempt in the legislature last year to reduce the city's role on the Richmond Metropolitan Authority, which runs some of the area's toll roads and bridges as well as The Diamond.

A bus system that goes beyond the city is the area's top regional transportation need, Council President William J. Pantele and Councilman E. Martin Jewell said.

As recommended by the Richmond Regional Planning District Commission, the authority would be able to raise funds from what the commission called "incremental increases" in a number of taxes or fees, possibly including the sales tax on vehicle fuel, initial vehicle registration fees, vehicle rental taxes, local vehicle registration fees, sales taxes on car repairs, vehicle inspection fees and the grantor's tax.

The authority would be governed by a board made up of representatives from Richmond and the counties of Chesterfield, Hanover and Henrico, and possibly other area jurisdictions. The proposal was drafted by a task force of the Richmond Regional Planning District Commission.

"Ultimately, we're going to be looking at adding onto the tax burden of the people," said Councilwoman Ellen F. Robertson. "The process has been really kind of closed door."

"I prefer not to call it tax," replied state Sen. John Watkins, R-Powhatan, a proponent of a regional authority. "I think it has to do with an enterprise system and the fees associated with it."

Some local government officials and business leaders have argued that an authority could be a way to pay for projects that are being delayed because of the state's financial squeeze.

Robert Crum, executive director of the Richmond Regional Planning District Commission, told those at the meeting last night that the authority could help fund 166 unfunded but necessary projects in the region. The total bill for them is about $2 billion, he said.

Watkins and Del. Franklin P. Hall, D-Richmond, had introduced bills for such an authority in the last legislative session, but the idea was set aside after local officials complained they had not been consulted and said they were not ready to move ahead with the idea.

If implemented, a regional authority could be opened to Powhatan, Goochland, New Kent and Charles City counties as well as the town of Ashland.

Contact David Ress at (804) 649-6051 or dress@timesdispatch.com.
Process

I started readings on wayfinding, transit, and urbanism as part of an independent study class while developing my thesis proposal. This second semester course culminated in a publication design that explored transit and wayfinding, *Crosstown*. I selected mapping for my creative project since maps are necessary components of any transit information system. Through visualizing an existing concentration of bus service, I could afford car drivers the opportunity to change their habits, while encouraging them to be pedestrians and bicyclists at the same time.

Development of my creative project included researching and writing an annotated bibliography devoted to mapping, transit, and wayfinding during my third semester. This work located Richmond trolley maps, bus map design guidelines, and led to trials of the then-new Google transit mapping feature. I also developed a concept map for transit (pg. 12), which organized the reasons for promoting transit system use and expansion; linking land use, suburban sprawl, planning, social and economic benefits of urban neighborhoods, and energy efficiency. A blog template with a graphic identity was also designed for Richmond transit information.
My readings and prior personal experience provided confirmation that integrating pedestrian, bicycle, and transit travel modes with neighborhood information was important, and that transit is compatible with other modes. I wrote an essay that compared and analyzed the London Underground and New York subway maps, explaining my interpretation within the framework I established. This essay, “Mapping Transit Design,” considered approaches to simplifying and arranging the routes of transit lines. It also considered the interactions between pedestrian and transit travel.

I traveled to Washington, D.C. and Baltimore, Maryland and was able to collect transit maps there, adding them to those I had collected online. During the fall semester there was a GRTC proposal to eliminate the #16 route, which led plotting the stops in the VCU/Monroe Park area. I also began visual experiments with some of the maps I had acquired, to develop my own interpretations of transit maps and to better understand the strong and weak points in their design.

This offered an opportunity, as part of my third semester signature project, to develop a personal visual language built upon transit mapping. The components of this language included block outlines, transit lines, and sometimes the street names as label text. I used my analysis of worldwide transit map station indicators to consider various stop indicators on a bus route map. Another related exploration was for a minimal, largely text-driven, wayfinding interface. While this was only developed to screen sketch prototypes, it was based on ideas of trip itineraries and strip maps. The intention was to give the user just enough information to guide him or her on a transit trip by means of stops and destinations.

The VCU/Monroe Park Transit Map fused a Richmond street map with neighborhood and consolidated bus route information. Enlarging the street area relative to the blocks and buildings made it possible to place the lines between the blocks, while not having to move the street labels alongside. The destinations were chosen to reflect both the destinations reached by the bus routes, and nearby neighborhoods. The typography used sans serif typefaces with generous x-heights and relatively open apertures for good legibility. Frutiger was chosen for the smallest size, and FF Unit for larger text. Antique Olive was tried at an intermediate stage for more variety in the larger size, but its expressive curves were distracting.
After completing the map, the next creative project goal of a user study was set aside in favor of creating a digital transit presentation, given my interest in advocacy and engaging with the future of transit. I had researched the West Broad Street corridor in Henrico County, and wanted to produce a presentation that addressed the need for transit there. There was also an initiative by the Richmond Regional Planning District Commission to establish a regional transit authority. While unsuccessful, it provided an opportunity to explore naming, typographic visualization, and communication goals in support of regional transit solutions.

Before starting storyboards, a list of points that the presentation should address was compiled. The first storyboards combined initial visualization ideas with a rough script, since presenting the various points without a voice-over seemed problematic at best. A search for photographic reference produced a mix of images from various sources. This underscored the necessity of finding a common visual thread for the presentation. I had already started sketching a simplified, overhead perspective of a car to represent drivers, and a related abstract transit vehicle intended to be evocative of both bus and light rail. Abstraction was chosen as a visual strategy because it permits both generalization and personal identification at the same time, and was a feasible way to produce illustrated images.

As the storyboards progressed, the various panels were revised toward more evocative images. They were reworked to reflect concepts of highway congestion, greenhouse gas emissions and household carbon footprint, and space efficiency among others. The rhetorical technique of metonymy was introduced to further shift attention away from drivers’ individual cars. A car key in abstracted form, and a similarly abstract transit card, were used to contrast the two alternatives. This was intended to sidestep highly emotional responses to both constraining drivers to transit lines and each driver’s likely attachment to his or her own vehicle, while not recalling the biases against public transit already identified.

Scripts were written for brief announcements supporting a regional transit authority, using the invented name Cenvatrans, for Central Virginia Transit. While not incorporated into the presentation, they provided practice. When my scripted voice-over, edited with background music and an initial set of illustrations, was presented for review, it was suggested that I revise my script and explore alternatives. To insure that I had a complete set of illustrations after revisions, some points were edited out, and three variations were written, differing in tone of voice.
The most conversational and least aggressive was selected and a professional reading provided for the voice-over.

The background music search encompassed both early electronic music from the 1970s and contemporary musicians. The base criteria for the final track was that it needed a consistent forward-moving rhythm, had a contemporary texture, and was free of distracting sonic effects. The electronica genre was chosen, both as a personal favorite and to underscore the future orientation of the presentation, and to reflect the contemporary simplified illustration style. Ulrich Schnauss’s music was the most successful, and his “Far Away Trains Passing By” album provided the Knuddelmaus track for further editing.

The transit card and household carbon footprint illustrations show the conceptual approach taken in their development. Both started with attempts to represent them literally, and each incorporated abstract references in the final versions. The transit card referred to the common shape of these cards, with blocks representing both speed stripes and greeked typography. Further development reconceptualized the stripes, keeping their forward motion, and adding a reference to city skylines. A bridge or path, represented by a ribbon in perspective, was added in contrast to the skyline, emphasizing motion in opposing directions, literally passing over and through the city. The household carbon footprint was represented originally by oil derricks, these were replaced by the chemical formula for carbon dioxide. The reduction of household CO2 emissions was represented by a tree in contrast to the typography.

As a final step, basic motion for the illustrations was synchronized with the soundtrack to give visual interest to the presentation. Credits and opening graphics were added to complete the presentation, now entitled The Card, and a QuickTime movie rendered as a final product.

Concurrent with my creative project, I attended public meetings on transit and transportation planning in the Richmond region. As part of this activity, I became familiar with the details of various projects, the options being proposed, and the ways in which various groups, including GRTC, discussed transit. I also wrote two critical summaries on transit policy and planning as a volunteer for the Partnership for Smarter Growth. The net result of this activity was that I was able to develop my understanding of transit needs, opportunities, and obstacles on a local level as a traditional advocate, complementing my thesis work as a graphic designer.
Household carbon footprint illustration
Two phases of transit card illustration, opposite and this page
Transit-oriented development illustration
I. You can provide an alternative to expensive highways and more congestion.
Central Virginia Transit – Cenvatrans. Leave your car behind.

II. You can provide a transportation alternative that revitalizes older neighborhoods.
Central Virginia Transit – Cenvatrans. Leave your car behind.

III. You can connect all of West Broad Street with the future of Henrico County.
Central Virginia Transit – Cenvatrans. Leave your car behind.

IV. You can arrive at Staples Mill station, shop at Short Pump, and get to work without driving.
Central Virginia Transit – Cenvatrans. Leave your car behind.

V. You can reduce our dependence on foreign oil, without burning dirty coal for power.
Central Virginia Transit – Cenvatrans. Leave your car behind.

VI. You can shrink your household’s carbon footprint by 25% or more.
Central Virginia Transit – Cenvatrans. Leave your car behind.

Voiceover:
Car or transit?
Keys or card?
Transit is an option we should consider. It can have big impact.
We can chose to spend less time in traffic.
States are less able to pay for maintaining existing roads while at the same time budgeting for new highways caused by growing traffic demand.
Instead of stop-and-go, you can have a more productive trip to work on transit.
An average car takes up a lot of room, as much as twelve times the space of a person.
While one transit vehicle can replace forty or more cars, and one transit line entire lanes of traffic.
Surface parking is an inefficient use of land. Transit allows other uses; we can set aside more space for parks, recreation and farmland.
Transit tackles the challenge of global warming. In the U.S., 31% of carbon dioxide emissions are from transportation.
A solo driver switching to transit can reduce a household’s carbon footprint between 25 and 30%. Transit also reduces our dependence on foreign oil.
Even the electric car will still require highways, and right now electricity comes largely from dirty coal.
Transit tackles climate change. A solo driver switching to transit can reduce a household’s carbon footprint between 25 and 30%. Transit is more energy efficient than cars.
Transit is pivotal to revitalizing older sites along commercial corridors. It brings in a potential market when it runs on these routes.
Transit even encourages mixed-use projects of walkable neighborhoods with sidewalks, where bicycles are welcome.
And transit can connect to intercity travel, making connections at airports and train stations.
Consider a future where the card lets us put down our keys.
We can choose this option. We can make transit available, now.
...UNABLE TO
MAINTAIN EXISTING...

WE NEED TO
CAN SPEND
LESS TIME IN
TRAFFIC...

...SPEND LESS TIME
IN TRAFFIC...

Road congestion/highway illustration and Atlanta interchange photo
Evaluation and Future Directions

Limited distribution of the VCU/Monroe Park Transit Map gave some indication of its potential value. It elicited positive responses from students, and from faculty outside the Department of Graphic Design, when it was sent to them. In addition, transit riders in the New York area unfamiliar with Richmond responded favorably. It was posted online at the Oregon Hill blog, www.oregonhill.net; appeared for a period on www.howirichmond.com; and is a featured link on the Monroe Park page maintained by www.fandistrict.org. The map was submitted to VCU Parking and Transportation, but no response was received.

However, none of these posts generated additional email or inquiries. The map can be located through Google and presumably will be archived by services such as the Wayback Machine. Taken together, the results are mixed. There was enough perceived value to the map that it was posted without too much personal intervention, and one external link was generated by someone not directly aware of the project. Yet the positive feedback may well have been partially a reflection of goodwill towards the designer, rather than arising from the design itself.

Gauging the usability and effectiveness of the map, as well as any benefits from wider distribution, would be the next logical step. Specific studies would need to be undertaken to evaluate whether the map represents a useful prototype for representing mixed transit/pedestrian travel and wayfinding. These should include determining the map's ability to both motivate non-riders to try the system and expand transit use by current riders; and how well the map can be interpreted by a wide range of potential users.

In addition to understanding the effectiveness of the map, results from these studies might suggest changes or alternatives for a better design. For Richmond, it is unclear whether creating the map can lead to higher expectations for system information from GRTC. Lastly, the paper completed as preparatory research for the map, which compares the London Underground and New York City subway maps, may have future value. It could form the basis for a scholarly publication or journal article on map design, since there seems to be a gap in the literature between cartography and graphic design in this area.
The Card, or visual presentation on transit, requires a different set of criteria for evaluation. Since it was completed at the end of the final semester for the exhibition, feedback was very limited. Showing the presentation to a greater number of people is needed to evaluate whether it communicates effectively and which audiences react most favorably to its message. Since the presentation is intended to address areas with poor or no transit service, such as Henrico County in the suburban Richmond area, these are locations that should be given priority for audience evaluation. It will be posted online through YouTube, but this may not necessarily provide the kind of viewer feedback needed to improve the presentation.

Patricia Villa at the Virginia Transit Association suggested contacting the marketing staff at transit agencies for feedback, but cautioned that given demands on their time, few might be able to respond. Transit conferences and the American Public Transportation Association in Washington, D.C. are further options located within the transit field itself. Coming from the opposite direction, contacts through the Partnership for Smarter Growth have not led to any presentations to citizen-led or activist groups in the Richmond region with a priority interest in transit. There is an active Virginians for High-Speed Rail group, concentrating on intercity travel, which might lead to locating more people with similar concerns.

Nationally, there are transit advocacy groups such as the Straphangers Campaign in New York that while oriented locally might be helpful. In terms of the goals of my thesis, the challenges of assembling an audience for the presentation, especially on the local level, point out how advocacy requires leadership and social capital to be effective. That requirement does not mean that designing tools for advocacy, such as maps and presentations is not important, merely that in isolation they may have limited impact.

Viewed from another perspective however, my design process and creative project has led not only to a knowledge base, but specifically reflects the needs identified in the introduction and problem statement. In addition, on many occasions when people were informed of the focus of my creative project, they responded that it was a worthwhile activity. Thus the usefulness of my thesis may lie beyond its function as a project in applied design, but instead in providing a template for graphic design to be linked to advocacy and civic involvement.
West Broad Street commercial corridor, opposite; solo driver and transit vehicle comparison illustration
Electric car, power plant, coal energy, and transportation greenhouse gas output illustrations, opposite; vacant commercial site illustration, below
...mutual competition, the ability of a design to compete with an equally competitive alternative. Today, individual cars and public transportation are so related. Designs for public transportation—rail, city buses, and trolleys—will have to consider what would make public transportation more attractive than driving individual cars...

Klaus Krippendorff
Mapping and Transit, annotated:


History and development of maps for travel and transportation, from pre-Renaissance itineraries through twentieth-century American rail, highway and aeronautical maps. Examples and discussion of functional and rhetorical roles.


Visual representations of geographic, quantitative and qualitative data are systematically defined and compared. This framework clarifies differences between diagrams, networks and maps. Translation of the French original.


Color coding improvements tested on transit map design.


Well-illustrated history of the London Underground map developed by Henry Beck. Explains the problems that led to the landmark diagram representing London’s complex rail transit network and its later evolution.


Comprehensive review and discussion of theories about, and research on, map functions. Considers the viewpoints of information processing and psychology, the visual and verbal language of maps through semiotics, and problems of geographic visualization.

Essays on mobile mapping technology and user requirements, mostly from the standpoint of a pedestrian or driver in an urban environment.


A brief, clear primer on the visual communication of information, with attention to diagrams, pictorial images and text. Leads off with a discussion of subway maps.


A “best practices” design guidelines manual for bus transit systems that addresses system maps, individual routes, and passenger information. The associated technical memorandum, NCTR Project 77710, has full references, survey data and methodology.


A rail-oriented compendium of worldwide transit maps, with minimal information about each city. Useful four-page review of transit map design development. The reduced size of complex maps weakens the book as a complete design reference.


Reproduces transit maps of this time period from Amsterdam, Baghdad (as proposed), and Tokyo.


History and description of transportation networks and urban growth in eleven major world cities, concentrating on rail. Statistics on ridership by transit mode, system maps, population density, and engineering achievements noted. In English and Spanish.


Comprehensive visual reference for map design. Examples and analytical discussion of transit, network and geographic maps. Includes data mapping and representations of space and architecture.


Design guidelines for, and examples of, passenger information, including signage and maps. Useful older baseline study.


Representations that aid in understanding data from both small and large sets. Good discussion of timetables in transportation, use of color, visual separation and grouping. Limited discussion of network diagrams and strip maps.


Includes bus and rail transit maps, as well as highway maps and pedestrian wayfinding systems.


Essays on public information including map design, transit timetables, wayfinding, usability studies and evaluation of information graphics.
Wayfinding, annotated:

Characterizes both the decisions and the information people need to navigate. Differentiates between linear and spatial wayfinding; considers cueing and specific messages. Pioneering reference to the subject.

Examples and rules of thumb for the design of wayfinding systems and maps. Includes the needs of pedestrians and transportation users, incorporating ideas of placemaking and identification.

An analysis of imaging and wayfinding by city residents led to Lynch’s classic formulation of five key urban representations: paths, edges, districts, nodes, and landmarks.

Analysis of wayfinding tasks and requirements for multimodal transit. Map information and verbal directions are used to build an ontology, a computer science tool used for information modeling and application development.

Additional works consulted:


Animation, film, and video:


*The Expanding Airport.* The Office of Charles and Ray Eames. 10 min. Pyramid Film and Video, 1958. Video transfer of color film.


*An Inconvenient Truth.* Paramount Pictures; directed by Davis Guggenheim with Al Gore. 96 min. 2006. Color.


