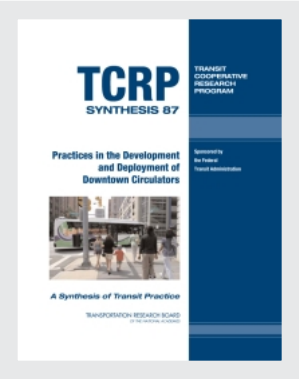

Practices in the Development and Deployment of Downtown Circulators

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Dan Boyle; Transportation Research Board

TRANSIT COOPERATIVE RESEARCH PROGRAM

TCRP SYNTHESIS 87

Practices in the Development and Deployment of Downtown Circulators

A Synthesis of Transit Practice

CONSULTANT
DAN BOYLE
Dan Boyle & Associates, Inc.
San Diego, California

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TRANSPORTATION RESEARCH BOARD

WASHINGTON, D.C.
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TRANSIT COOPERATIVE RESEARCH PROGRAM

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Cover figure: The Charm City Circulator complements pedestrian activity in downtown Baltimore.
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FOREWORD

Transit administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the transit industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire transit community, the Transit Cooperative Research Program Oversight and Project Selection (TOPS) Committee authorized the Transportation Research Board to undertake a continuing study. This study, TCRP Project J-7, "Synthesis of Information Related to Transit Problems," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute a TCRP report series, Synthesis of Transit Practice.

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

PREFACE

By Donna L. Vlasak
Senior Program Officer
Transportation Research Board

The purpose of this synthesis was to document the state of the practice for transit agencies in terms of development, deployment, and sustainability of downtown circulator systems. It was accomplished through a literature review, transportation/transit agency survey, and case studies. Seven case studies across a geographic range of locations offer additional details on innovative and successful practices, as well as other related issues. These circulator locations include downtowns in Baltimore, Maryland; Hartford, Connecticut; Louisville, Kentucky; Philadelphia, Pennsylvania; Washington, D.C.; Los Angeles, California; and Austin, Texas.

Thirty-seven completed surveys were received from 42 agencies, yielding an 88% response rate. Results included transit agency assessments of the success of downtown circulators, benefits and drawbacks, desired changes, and lessons learned. Agencies that have discontinued or never implemented downtown circulators were also surveyed to gain an understanding of or the reasoning behind their decisions.

Dan Boyle, Dan Boyle & Associates, San Diego, collected and synthesized the information and wrote the report, under the guidance of a panel of experts in the subject area. The members of the topic panel are acknowledged on the preceding page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

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PRACTICES IN THE DEVELOPMENT AND DEPLOYMENT OF DOWNTOWN CIRCULATORS

SUMMARY

The concept of a special bus route circulating through downtown, especially one that utilizes a trolley-style or other striking vehicle, appeals to downtown business interests and elected officials as a means to encourage and support downtown revitalization. Many cities have developed and deployed downtown circulators, but there has not been significant literature documenting important aspects of these programs: planning and development, barriers to implementation, funding, performance, and strategies for making downtown circulators work. The limited information that exists is spread across the public, nonprofit, and private sectors. In addition, downtown shuttles are often owned and/or operated by other than traditional transit operators; therefore, there is limited industry and institutional history and knowledge of shuttle operations.

The purpose of this synthesis is to document the state of the practice in terms of the development, deployment, and sustainability of downtown circulator systems. Results of a web-based survey of a cross section of transit agencies in North America are used to document such important issues as:

- Why, how, and when the circulator began
- Major stakeholders
- Target market—employees, shoppers, tourists, convention-goers, and residents
- How the circulator is structured (administratively and operationally)—who operates, service span and frequency, and type of vehicle
- Barriers to success
- Funding
- Performance (ridership, productivity)
- Reasons for success or failure
- Lessons learned.

The survey of transit agencies was important in developing a "snapshot" of the current state of the art with regard to downtown circulators. The survey sampling plan involved a "core" sample of transit agencies that operate downtown circulators. In certain cases, the sample included the transit agency and another public- or private-sector entity that oversees the operation of the circulator. The core sample included 42 transit agencies and other entities. To guard against missing any agencies that have implemented downtown circulators and to ensure a broader sample an identical e-mail message was sent to APTA transit agency members inviting their participation in the survey.

Thirty-seven completed surveys were received from the 42 agencies in the core sample, a response rate of 88%. An additional 41 agencies heard about the survey and also participated, for a final sample total of 78 agencies. Of the 78 respondents, 74 are transit agencies, 3 are city departments of transportation (DOTs) responsible for the operation and oversight of the downtown circulator, and 1 is a transportation management association affiliated with a downtown business improvement district. Survey results included transit agency assessments of the success of the downtown circulator, benefits and drawbacks, desired changes, and lessons learned. Agencies that have discontinued or never implemented downtown circulators were also surveyed to gain an understanding of the reasoning behind their decisions.

The most important findings of this synthesis are listed here, followed by a summary of the experiences of the seven transit agencies that served as case studies. Major findings included:

- Funding is critical to success. A stable, reliable funding source is ideal. Funding, especially operating funding, was the only factor cited as a major constraint by a majority of survey respondents, and is also a dominant factor among agencies that discontinued or never implemented a downtown circulator.
- Branding of the service, vehicles, and stops is imperative to establish the circulator's identity, particularly if the target market is tourists/visitors and/or nontransit riders.
- Simple linear routes with frequent and reliable service, no fares, and clockface headways are most attractive to riders. Frequent service and simplicity in route design and fare payment are emphasized in the survey results and the case studies.
- The most common target markets for downtown circulators are employees and tourists/visitors. Most survey respondents indicated that their downtown circulators serve more than one market, although there is often a primary market. Interestingly, downtown circulators oriented toward the visitor/tourist market had the highest median ridership and productivity.
- Partnerships are vital in building a successful downtown circulator. Many agencies naturally think of partnerships in financial terms, but these are the exception and not the rule. Partnerships are very important in providing political support for the circulator and are a means to change the perception of transit in the business community.
- Size does matter. Only 2 of 13 agencies with a service area population under 500,000 (a proxy for size of downtown) reported a daily ridership as high as 1,000 on their downtown circulators; both are oriented toward the tourist market, and one only operates during the winter in a ski resort area. Small cities can anticipate limited ridership for a downtown circulator.
- An "If you build it, they will come" approach is not realistic. A new circulator will not bring new customers to a struggling downtown.
- Flexibility is important, especially given the changing role of downtown in many cities. Most respondents have changed their circulator routes in response to various changes in downtown.
- Maintenance issues are sometimes overlooked in deciding what type of vehicles to use. Higher maintenance costs may be acceptable if an environmentally friendly electric or hybrid vehicle is used; however, it is important that the agency be aware of these costs when making the decision.

For all circulators in the sample, the median ridership was 600 on weekdays, 1,100 on Saturday, and 1,500 on Sunday. Median productivity (measured as riders per revenue hour) was 23 on weekdays and 26 on both Saturday and Sunday. These results are misleading, because circulators with high ridership are more likely to operate on Saturday and Sunday. After controlling for the number of days per week of operation, median ridership and productivity are highest on weekdays. Median ridership and productivity is generally proportional to service area population; downtown circulators in larger cities have higher ridership and are more productive. Downtown circulators oriented toward tourists and visitors had the highest median ridership and productivity.

The following seven case studies provide additional details on innovative and successful practices as well as on issues related to downtown circulators.

- Baltimore, Maryland—Baltimore City Department of Transportation
- Hartford, Connecticut—CTTRANSIT
- Los Angeles, California—Los Angeles Department of Transportation
- Louisville, Kentucky—Transit Authority of River City
- Philadelphia, Pennsylvania—Center City District
- Washington, D.C.—District Department of Transportation
- Austin, Texas—Capital Metro.

The case study agencies offered the following lessons learned:

- A stable, reliable funding source is important. A circulator based on voluntary contributions will not work, as shown by previous efforts.
- Branding of the service and the buses to stand out from the regular transit fleet is important, especially if the target market is nontransit users. Some case study cities chose to use trolleys and noted that people like these vehicles, whether they ride them or not. Others use unique, distinctive, high-quality buses painted to stand out visually. Iconic, comfortable vehicles help build a strong brand.
- Frequent service is necessary to attract riders. The consensus among the case studies is that service frequency be every 10 to 15 min. Reduce the span of service or route length before making service less frequent.
- It is desirable to connect as many "dots" as possible that would serve as destinations for the customers, but in a short route that allows for good frequency. This may not please everyone all of the time. One agency noted that the routes chosen did not please all stakeholders, but the agency stood by its goal to "keep it simple."
- Free fare is desirable to attract ridership. If a fare is charged, it needs to be nominal and easy to understand and pay. One case study found a higher fare acceptable because of the focus on the tourist market.
- It is important to define the target market. Most circulators serve multiple markets, but focus on a single market (tourists/visitors, employees) overall or at certain times of the day or week.
- Supportive partners who are willing to lobby for the service can be extremely valuable. The downtown circulator can build support for transit among key stakeholders by providing positive images congruent with the vision of civic leaders for their city and especially their downtown. Special event trolleys associate the transit agency with the vibrancy of the community and thus change how transit is viewed.
- Buy-in from the transit union is important to allow for a special selection of drivers that can be trained as community ambassadors/visitor guides. This is especially true for the tourist and visitor market.
- Coordination with other agencies and municipalities is important to clarify the role of the downtown circulator system.
- To understand their needs, feedback from large employers, visitors' bureaus, convention centers, and hotels will help to plan effectively for service span, route alignment, and regional connections, and to avoid duplication and ideally coordinate with private shuttle operators.
- A regular cycle of reviewing downtown circulator service may ensure that you capture changes to the downtown landscape. Changes in travel patterns and migration of employment centers can gradually affect location of demand and running times, but can be identified through periodic reviews.
- It is important to adapt to traffic patterns and flow.
- An understanding of typical walking distances and attitudes toward walking is needed to gauge whether a downtown circulator will work. If residents and downtown employees are averse to walking, so much the better, as long as circulator frequency is good.

Findings from this synthesis suggest four major areas of future study:

- Effective strategies for a downtown circulator in downtowns of various sizes and compositions. The case studies present examples of downtown circulators oriented toward different markets and in different downtown environments. How does a city or transit agency make a decision as to which market to serve? Do tourist and visitor downtown circulators require a certain size of downtown or special attractions? Is the combination of a convention center and nearby hotels sufficient to justify a circulator? Is there a minimum employment density that warrants an employee-based circulator?
- Who should operate the downtown circulator? In four of the seven case studies the regional transit agency was not the operator of the downtown circulator. This frequently

reflects a regional focus on the part of the transit agency and a willingness to have municipal partners or the private sector operate local shuttles, in downtown or elsewhere. How do factors such as expertise, flexibility, politics, stakeholders, and access to funding sources (to name only a few) affect this decision? Several of the downtown circulators operated by a city DOT or private-sector agency are relatively new. As their circulators mature, it would be interesting to see if these are different in significant ways from circulators operated by transit agencies.

- Measures of success. The case studies cited both quantitative and qualitative measures of success. Who decides whether a downtown circulator is successful? How do intangible measures of success fare over time, particularly in times of tight budgets? Are intangible measures more prominent if there is a dedicated funding source? Does the measure of success change over time? The case study agencies all discussed and defined success, but further research in this area could be illuminating.
- Applicability of lessons from downtown circulators to other areas. Can experiences with downtown circulators be applied elsewhere? Are there lessons for neighborhood circulators or for circulators serving rail stations outside of downtown areas? How do these lessons apply?

CHAPTER ONE

INTRODUCTION

PROJECT BACKGROUND AND OBJECTIVES

Most transit agencies have received requests to implement a circulator route within downtown. The concept of a special downtown route, especially one that uses a trolley-style or other striking vehicle, appeals to downtown business interests and elected officials as a means to encourage and support downtown revitalization. Many cities have developed and deployed downtown circulators; however, there is no significant literature documenting these programs and covering planning and development, barriers to implementation, funding, performance, and strategies for making downtown circulators work. The limited information that exists is spread across the public, nonprofit, and private sectors.

The purpose of this synthesis is to document the state of the practice in terms of the development, deployment, and sustainability of downtown circulator systems. Results of a web-based survey of a cross section of transit agencies in North America are used to document the following important issues:

- Why, how, and when the circulator began.
- Who are the major stakeholders?
- What is the target market—employees, shoppers, tourists, convention-goers, or residents?
- How is the circulator structured (administratively and operationally)—who operates, service span and frequency, and type of vehicle?
- What are the barriers to success?
- Funding.
- Performance (ridership, productivity).
- Reasons for success or failure.
- Lessons learned.

Survey results included transit agency assessments of the effectiveness of their downtown circulators, benefits and drawbacks, desired changes, and lessons learned. Agencies that have either not implemented or discontinued a downtown circulator were also surveyed to gain an understanding of the reasoning behind these decisions.

This report includes a review of the relevant literature in the field. In addition, one chapter documents case studies, based on interviews with key personnel at selected agencies, to profile innovative and successful practices and to explore ongoing issues. Findings from all these efforts are combined to summarize lessons learned, gaps in information and knowledge, and research needs.

This study is particularly timely in light of the FTA announcement in December 2009 regarding the availability of Section 5309 funds as discretionary grants for Urban Circulator Systems in support of the U.S. Department of Transportation Livability Initiative intended to enhance communities by investing in healthy, safe, and walkable neighborhoods.

TECHNICAL APPROACH

The approach to this synthesis included:

1. A literature review. A Transportation Research Information Services (TRIS) search using several different keywords was conducted to aid the literature review.
2. A survey of transit agencies, described in the following paragraphs.
3. Telephone interviews with seven agencies selected as case studies.

The survey of downtown circulators was designed to solicit information on the origin of the circulator, target market, stakeholders, administrative and operational structure, barriers to success, funding, ridership and productivity, and evaluation. Once finalized by the panel, the survey was posted and pretested. The pretest resulted in changes to the survey structure, placing important assessment questions toward the beginning, as well as minor changes in logic and flow.

The sampling plan involved a "core" sample of transit agencies, many of which were recommended by panel members or other survey participants that operate downtown circulators. In certain cases, the sample included the transit agency and another public- or private-sector entity that oversees circulator operation. The core sample included 42 transit agencies and other entities. An e-mail with an attachment from the TCRP program manager explaining the importance of the survey and a link to the on-line survey site was sent to each of the 42 agencies. A known contact was identified at each agency. Follow-up e-mails were sent approximately four, six, and eight weeks after the original contact to encourage response.

TABLE 1
TRANSIT AGENCIES BY SIZE

No. of Vehicles Operated in Maximum Service	No. of Agencies Responding	% Agencies Responding
Fewer than 250	57	73.1
250 to 999	14	17.9
1,000 or more	7	9.0
Total	78	100

To guard against missing any agencies that have implemented downtown circulators and to ensure a broader sample an identical e-mail message was sent to APTA transit agency members inviting their participation in the survey.

Thirty-seven completed surveys were received from the 42 agencies in the core sample, an 88% response rate. An additional 41 agencies not included in the core sample became aware of the survey and also participated, for a final sample total of 78 agencies. Of the 78 respondents, 74 were transit agencies, 3 city departments of transportation (DOTs) responsible for operation and oversight of the downtown circulator, and 1 a transportation management association (TMA) affiliated with a downtown business improvement district. The 78 agencies operating within the cities in the sample range in size from fewer than 25 to more than 2,000 buses operating in peak periods. Note that this is the overall size of the transit fleet, not the number of downtown circulator buses operated.

Table 1 presents the distribution of responding agencies by size. In cases where the responding agency was not the primary transit agency, the size of the primary agency was used to measure size. More than 70% of all responding agencies operate fewer than 250 vehicles in peak service.

TABLE 2
TRANSIT AGENCIES BY FTA REGION

FTA Region	No. of Agencies Responding	% Agencies Responding
I	3	3.8
II	5	6.4
III	10	12.8
IV	14	17.9
V	10	12.8
VI	7	9.0
VII	0	0.0
VIII	1	1.3
IX	17	21.8
X	8	10.3
Non-U.S. (Canada)	3	3.8
Total	78	100.0

FIGURE 1 Map of FTA regions.

Most of these smaller agencies were not included in the core sample.

Table 2 shows the distribution of responding agencies by FTA region. Regions IX (southwest), IV (southeast), III (mid-Atlantic), and V (Great Lakes) had the most agencies responding. Figure 1 is a map of FTA regions. Figure 2 presents the distribution of survey respondents across the United States and Canada. Case study locations are shown by a large dot.

ORGANIZATION OF THIS REPORT

Following this introductory chapter, chapter two summarizes the findings of the literature review. Chapter three, the first of two chapters to present the results of the survey, focuses on the origin, structure, operation, and administration of downtown circulators. Chapter four discusses the responding agencies' assessment of the success of the downtown circulators. This chapter summarizes agency satisfaction with the circulator, potential improvements, and lessons learned. Chapter five reports detailed findings from each of the seven case studies. The selection process for case studies had several criteria: (1) include transit agencies of various sizes in different parts of the country; (2) include agencies at various stages of the implementation and operation of downtown circulators; (3) select a variety of agencies charged with operating or overseeing the operation of downtown circulators, including transit agencies, municipal DOTs, and a private-sector entity; and (4) include at least one agency that has discontinued its downtown circulator to reflect real difficulties facing downtown circulators. Chapter six summarizes the findings, presents conclusions from this synthesis project, and offers items for further study. Findings from the surveys and particularly the case studies provide an assessment of strengths and weaknesses and likely future directions.

Appendix A presents a copy of the on-line survey. Appendix B provides survey results by question. Appendix C is a list of all transit agencies participating in the survey.

FIGURE 2 Survey respondents and case studies.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

This chapter summarizes findings from a literature review related to downtown circulators. A TRIS search was conducted to aid the review, using keywords such as "circulator," "downtown circulator," "downtown shuttle," "downtown trolley," and "downtown and transit."

OVERVIEW OF DOWNTOWN CIRCULATORS

The most detailed review of multiple downtown circulators is a 2005 study by Perk et al. (*1*). This report reviewed five downtown circulators from around the country and reported on three case studies in Florida. Several conclusions were drawn from the analysis, including:

- There is no one-size-fits-all approach; circulator systems are designed for a variety of purposes. Each circulator reviewed has unique aspects, making comparisons difficult.
- Frequency, reliability, and good connections with other transit modes are service elements associated with successful circulators. Relatively high levels of population and/or employment density are also important.
- The circulator rider is likely to be unfamiliar with transit; therefore, simplicity in routing and ample signage is necessary.
- Ideally the circulator service is customized for the purpose it is serving. Downtown employees have no interest in a tour of local attractions.
- Nominal or no fares encourage ridership.
- A strong customer perspective and customer-service orientation tends to lead to success.
- It is important for the circulator to have its own identity.
- Marketing for the circulator may need to be different from marketing for the transit system as a whole.
- Local partnerships are important.
- It is likely that a mixture of funding sources will be used for a downtown circulator.

Ohland (2004) summarized streetcars and trolleys in relation to their role in urban revitalization projects (*2*). This article focused on the Pearl District in Portland, Oregon, and also discussed successful implementations in San Diego and Tampa.

SPECIFIC CIRCULATORS

Several studies and articles reported on the details of specific downtown circulators. The LINK downtown circulator in Ann Arbor, Michigan, has been the subject of two detailed articles. White and Malloy (2008) examined design, implementation, and evaluation of the LINK service (*3*). This paper detailed the efforts of the Ann Arbor Transportation Authority (AATA) in planning and operating the route, from an inclusive planning process to an innovative marketing campaign to survey research used to bring service more in line with riders' transportation needs. In August 2003, AATA introduced the 3.2-mile LINK route, which connected downtown districts and the University of Michigan campus. For the first year of operation ridership remained low, peaking at 282 riders per weekday and 9 passengers per service hour. During this time, AATA conducted two onboard rider surveys. The results of these surveys inspired several service changes introduced in June and August 2004, which lead to a near doubling in ridership. By March 2005, ridership had hit 821 average weekday riders and 23 passengers per service hour. The success of the service enabled the LINK to continue a modified route with funding shared between the AATA, University of Michigan, and Ann Arbor Downtown Development Authority.

Cornillie (2006) examined the funding and planning evolution of the LINK service in Ann Arbor (*4*). The paper notes the use of a Congestion Mitigation and Air Quality grant in service implementation and stresses the importance of an ongoing planning process that continued to engage stakeholders and led to the successful redesign of the route.

In an article describing changes in ABQ Ride, the transit agency serving Albuquerque, New Mexico, Martinez (2008) reported on the launch of a free downtown circulator in 2007 (*5*). The circulator was designed to connect the Rail Runner commuter rail station (also the location of the ABQ Ride Transit Center) to shopping and employment destinations in the heart of downtown Albuquerque.

Two examples of downtown circulators in Arkansas have been described in the literature. Bell (2009) discusses the impacts of Central Arkansas Transit's streetcar line on the Little Rock metropolitan area (*6*). The streetcar line provides a new image for transit as well as a new mobility option in Little Rock. Simpson (2004) described how the trolley system that Eureka Springs Transit operates meets the needs of

visiting tourists and benefits the town's permanent residents and businesses (*7*).

The primary focus of an article by Hanson (2003) is on managing parking in downtown Indianapolis, but it also discusses plans for a circulator or electric bus linking downtown attractions and a People Mover, a high-tech elevated rail service connecting medical facilities (*8*). Hanson stresses the need for proactive collaboration among city government, law enforcement agencies, private parking operators, and businesses to make sure parking complements economic development. Hurst (2005) describes the People Mover system in downtown Indianapolis and presents the project experience after two years of operation (*9*).

Liu and Lau (2008) documented a feasibility study of an automatic people mover application for Newark, New Jersey (*10*). The paper considered potential benefits of replacing the current loop, a small bus circulation system in downtown Newark, with automatic people mover technology. Potential benefits include reduction in passenger walking, waiting and overall travel time, and provision of an anchor for downtown business development.

Fox and Lancaster (2006) documented development of vintage rail trolley service in Memphis, Tennessee, and presented considerations for integration of light rail regional service on the existing system (*11*). Topics included public perceptions of the existing trolley system and proposed light rail system, infrastructure elements that need to be addressed, and planning coordination in the Memphis region.

Bogren (2009) provides an overview of streetcar and trolley urban transit development in Seattle, Washington (*12*). The author's primary emphasis is on attracting employers and encouraging job creation.

Appendix E of *TCRP Report 117* (2007) summarizes design and operational impacts of the LYMMO system, a bus rapid transit downtown circulator in Orlando, Florida (*13*). A primary goal of LYMMO is to connect parking garages at the fringe of downtown and the transit center with downtown destinations. Given the focus of *TCRP Report 117,* the design, traffic operational, and safety elements of the system receive the greatest attention.

Krambeck and Emerson (2008) present the perspective of the Downtown Development Authority in Fort Lauderdale, Florida, in planning a downtown streetcar (*14*). The authors noted that a primary benefit is that by using a streetcar as a vehicle for economic development the Authority needs only to put up a minimal amount of funding to achieve significant investment in the downtown area.

Hickey and Delgado (2007) describe how the city of Miami is considering a circulator system to provide local connectivity by means of an urban transit system from the downtown Miami central business district (CBD) to the Miami Design District and adjacent redeveloping areas (*15*). This paper identified the range of credible vehicle options within this alternative by first determining vehicle requirements based on the latest physical design for the streetcar alternative, then compared those requirements with a range of candidate vehicles currently available in the North American market.

Volinski and Perk (2000) prepared a feasibility study to determine whether or not local circulator systems could be designed and funded in Miami (*16*). It notes that "the key to feasibility is funding" and identifies several possible routes and funding sources.

SUMMARY

The literature review supports the initial observation that there is not a significant body of research documenting downtown circulators. Many of the reports described in this chapter are cursory in nature, providing either a broad overview of trends or an introductory description of a particular circulator without in-depth analysis. A few are more thorough, delving into details on the planning and implementation of a specific downtown circulator or reviewing common factors over several case studies. These reports provide a good starting point for this study.

The next two chapters present the results of a survey of transit agencies regarding downtown circulator systems. The survey results provide a snapshot of the state of the art as it exists today with regard to downtown circulators.

CHAPTER THREE

SURVEY RESULTS: DOWNTOWN CIRCULATORS

INTRODUCTION

This is the first of two chapters presenting the results of a survey of transit agencies regarding the development, deployment, and sustainability of downtown circulator systems. The survey was designed to elicit information on the origin of the circulator, target markets, route structure, administration, marketing, day-to-day operation, barriers, constraints, and obstacles to success, and an assessment of how well the program met its objectives.

Thirty-seven completed surveys were received from 42 agencies (almost all were transit agencies) approved by the panel for inclusion in the sample, a response rate of 88%. In addition, 41 agencies responded to an invitation to all APTA members to participate in the survey, for a total of 78 transit agencies in the final sample. The transit agencies ranged in size from fewer than 25 to more than 2,000 fixed-route transit vehicles.

This chapter analyzes survey results related to the impetus for beginning a downtown circulator, target markets, operation, administration, and marketing. Chapter four discusses survey results related to the responding agencies' assessment of their programs.

DOWNTOWN CIRCULATORS, NOW AND IN THE PAST

Table 3 summarizes survey responses regarding downtown circulators. More than 60% of respondents reported that a downtown circulator is operating within their agency's service area.

Inadequate funding and cost were the most common reasons that agencies did not implement a downtown circulator. Table 4 summarizes responses from these 13 agencies. In Table 4 and all subsequent tables where multiple responses were allowed, the sum of the number of agencies responding does not equal the total number of agencies responding.

Survey respondents included 18 agencies that had discontinued operation of a downtown trolley. Table 5 presents the reasons for discontinuation of downtown circulators. Low ridership was cited by a majority of respondents as a reason for discontinuation. Low productivity, loss of funding source, and cost were other reasons frequently cited.

Four transit agencies that do not currently have downtown circulators within their service area indicated that they do operate a fare-free zone in downtown. Because a fare-free zone is functionally similar to a downtown circulator, these agencies were asked to complete the survey. Three transit agencies indicated that they do not operate or oversee the operation of the downtown circulator, and terminated the survey.

The remainder of this chapter focuses on the 48 responding agencies that operate or oversee operation of a downtown circulator or offer a downtown fare-free zone.

BEGINNINGS

Table 6 shows the primary reason for implementing a downtown circulator. The transit agency, downtown organizations, and elected officials can all play a major role in the decision to begin operation of a circulator. Among "Other" responses were a combination of these factors, connections to parking facilities, and a nostalgic vehicle for downtown.

Table 7 illustrates a wide variety of purposes or goals of a downtown circulator. This question is asked in a slightly different way later, in terms of the primary market served by the circulator (the responses are provided in the next section). Multiple responses were allowed to this question and therefore most of the goals in Table 7 were mentioned by a majority of respondents. As an agency begins to design a circulator route tradeoffs emerge and the question of the primary market to be served becomes more important. Among the various goals in the table, the most frequent response was improving general mobility throughout the downtown area. "Other" purposes included connecting downtown with universities, cruise ships, casinos and resorts, and historic sites.

The transit agency, downtown business interests, and elected officials were also most likely to be stakeholders in the downtown circulator. Table 8 indicates that a majority of survey respondents included each of these three groups among the key stakeholders who played an active role in bringing this concept to implementation and in continuing to support it. "Other" includes convention/visitors bureaus, universities, state and county governments, regional planning agencies, and economic development agencies.

Stakeholders can build and maintain support for a downtown circulator. A "champion," someone who leads the effort to begin such a service, plays a critical role in moving from concept to implementation. Respondents were asked to name the primary champion for the downtown cir-

TABLE 3
STATUS OF DOWNTOWN CIRCULATORS

Status	No. of Agencies Responding	% Agencies Responding
Currently Operating	47	60.3
Formerly Operated but Discontinued	18	23.1
Never Operated	13	16.7
Total Responding Agencies	78	100

Note: Percentages do not add to 100% owing to rounding.

TABLE 4
REASONS FOR NOT IMPLEMENTING A DOWNTOWN CIRCULATOR

Reasons for Nonimplementation	No. of Agencies Responding	% Agencies Responding
Lack of Funding	8	61.5
Cost	7	53.8
Downtown Is too Small	4	30.8
Downtown Is Well-Served by Existing Routes	3	23.1
Lack of Interest from Downtown Businesses/Employers	1	7.7
Lack of Interest from Transit Industry	1	7.7
Other	4	30.8
Total Responding Agencies	13	100

Note: Multiple responses allowed; percentages do not add to 100%.

culator. Table 9 shows that the agency general manager was most frequently named as the champion, followed by downtown interests and city elected officials. Three respondents cited multiple champions.

MARKET FOR THE CIRCULATOR

The survey asked respondents to define the primary market for the circulator. Table 10 indicates that employees (35%) and tourists/visitors (26%) are the most likely primary markets. Despite the phrasing of this question, 16% of respondents reported multiple markets. Among the "Other" responses were school children, people running errands, all city residents, day laborers, and transit riders.

TABLE 5
REASONS FOR DISCONTINUING A DOWNTOWN CIRCULATOR

Reasons for Discontinuation	No. of Agencies Responding	% Agencies Responding
Low Ridership	10	55.6
Low Productivity	8	44.4
Funding Source Was Discontinued	7	38.9
Cost of Providing Service	6	33.3
Lack of Support from the Private Sector	3	16.7
Other	6	33.3
Total Responding Agencies	18	100

Note: Multiple responses allowed; percentages do not add to 100%.

The difficulty in identifying a primary market for the downtown circulator is shown in Table 11, where only two respondents indicated that the primary market identified is the only market for the circulator. A majority of respondents (68%) listed downtown residents as a secondary market, with visitors and shoppers also receiving attention. Downtown residents and shoppers were infrequent primary markets, but this table suggests that they are important. Two of the "Other" responses indicated that downtown residents are an emerging market, and various others noted court-related activities, universities, and all markets mentioned.

Has the market for the downtown circulator changed over the years? A majority of respondents answered no to this question; however, it is somewhat surprising how many replied yes, as shown in Table 12. This suggests a need to be flexible after the circulator is implemented and to track development trends in downtown.

TABLE 6
PRIMARY REASON FOR IMPLEMENTING A DOWNTOWN CIRCULATOR

Primary Reason	No. of Agencies Responding	% Agencies Responding
Transit agency desire to provide better connections within downtown	14	32.6
Requests from downtown businesses/ employers or Transportation Management Association	9	20.9
Elected officials encouraged or dictated implementation	6	14.0
Downtown transit center moved to new location; need to continue to serve heart of downtown	3	7.0
Request from downtown convention center or hotels	1	2.3
Opportunity for public–private partnership with private-sector funding	1	2.3
New rail service required connection to downtown	1	2.3
Other	8	18.6
Total Responding Agencies	43	100

TABLE 7
MAIN PURPOSES OR GOALS OF THE DOWNTOWN CIRCULATOR

Primary Reason	No. of Agencies Responding	% Agencies Responding
Improve general mobility throughout the downtown area	38	88.4
Encourage public transit use by employees	27	62.8
Provide a way to get around for convention goers	25	58.1
Encourage public transit use by shoppers	24	55.8
Provide a way to get around for visitors in downtown hotels	24	55.8
Support a park once ” concept, where the circulator connects parking and downtown connections	24	55.8
Encourage downtown revitalization	21	48.8
Serve residential areas in or near downtown	20	46.5
Connect a rail station to the heart of downtown	14	32.6
Connect a new transit center to the heart of downtown	8	18.6
Other	5	11.6
Total Responding Agencies	43	100

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 8
STAKEHOLDERS

Stakeholders	No. of Agencies	% Agencies Responding
Transit Agency	39	90.7
City Elected Officials	31	72.1
Downtown Businesses/Employers	28	65.1
Downtown Hotels	14	32.6
Downtown Convention Center	12	27.9
TMA	6	14.0
Other	13	30.2
Total Responding Agencies	43	100

Note: Multiple responses allowed; percentages do not add to 100%.
TMA = Transportation Management Association.

TABLE 9
PRIMARY CHAMPION OF THE DOWNTOWN CIRCULATOR

Champion	No. of Agencies	% Agencies Responding
Agency General Manager	15	34.9
Downtown Interests (employers, convention center, hotels, partnership)	9	20.9
City Elected Officials	7	16.3
Others in Transit Agency	5	11.6
Multiple Champions	3	7.0
TMA	2	4.7
Other	2	4.7
Total Responding Agencies	43	100

Note: Percentages do not add to 100% due to rounding.
TMA = Transportation Management Association.

TABLE 10
PRIMARY MARKET FOR THE CIRCULATOR

Primary Market	No. of Agencies Responding	% Agencies Responding
Employees	15	34.9
Tourists/Visitors	11	25.6
Multiple Markets	7	16.3
Downtown Residents	3	7.0
Shoppers	2	4.7
Other	5	11.6
Total Responding Agencies	43	100.0

Note: Percentages do not add to 100% due to rounding.

TABLE 11
OTHER MARKETS FOR THE CIRCULATOR

Other Markets	No. of Agencies Responding	% Agencies Responding
Downtown Residents	28	68.3
Visitors	20	48.8
Shoppers	17	41.5
Employees	14	34.1
None, Sole Focus on Primary Market	2	4.9
Other	10	24.4
Total Responding Agencies	43	100

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 12
CHANGING MARKET FOR THE DOWNTOWN CIRCULATOR

Changing Market	No. of Agencies Responding	% Agencies Responding
No	23	53.5
Yes	20	46.5
Total Responding Agencies	43	100

TABLE 13
CHANGES TO THE CIRCULATOR ROUTE FOR NEW MARKETS

Route Changes and Reasons	No. of Agencies Responding	% Agencies Responding
Downtown Residential Areas	7	31.8
Employment Sites	7	31.8
Hotels/Convention Center	7	31.8
Retail Sites	6	27.3
No Changes—New Markets Are Incidental	6	27.3
Rail Station	4	18.2
New Transit Center	1	4.5
Other	4	18.2
Total Responding Agencies	22	100

Note: Multiple responses allowed; percentages do not add to 100%.

The need for flexibility is supported in Table 13, which shows that only 27% of responding agencies have not changed the route of their circulator. No one cause for change dominates. Among the "Other" reasons are historic attractions, educational institutions, and museums.

DESIGN OF THE DOWNTOWN CIRCULATOR

Table 14 reports on the design of the downtown circulator route(s). Slightly more than half of respondents have a downtown circulator network with more than one route. A single loop route and a combination of different types of routes were the most common responses. "Other" responses included a linear route with a loop at one end and a fare-free zone downtown.

Table 15 shows who was responsible for the design of the circulator. In most cases, the transit agency was responsible for design of the routing, although the city played a role in the routing decisions for almost one-third of the circulators. "Other" responses include downtown groups, the county, a consultant, a university, and designed incrementally.

Table 16 shows who decides on any proposed changes to the downtown circulator. As indicated in Table 13, most circulators have been changed after implementation. Table 16 reflects current decision-making responsibilities. The transit agency usually decides on changes, but the city also plays an important role. "Other" responses included the county, a community review/input process, and the state DOT as the funding agency.

TABLE 14
DESIGN OF THE DOWNTOWN CIRCULATOR

Design	No. of Agencies Responding	% Agencies Responding
Single Loop Route	13	31.0
Combination of Different Types of Routes	10	23.8
Multiple Loop Routes	7	16.7
A Single Linear Route	5	11.9
Multiple Linear Routes	5	11.9
Other	2	4.8
Total Responding Agencies	42	100

Note: Percentages do not add to 100% due to rounding.

ADMINISTRATION

As seen in Table 17, the transit agency is typically responsible for day-to-day operation of the downtown circulator. "Other" responses included the county and different operators for circulators in different cities. The results in Table 17 are very similar to those seen in Table 16, the difference being that multiple responses were allowed in Table 16 for who decides on any proposed changes, whereas Table 17 asked for the single agency primarily responsible for operation.

TABLE 15
RESPONSIBILITY FOR INITIAL CIRCULATOR DESIGN

Responsible Entity	No. of Agencies Responding	% Agencies Responding
Transit Agency	34	81.0
City	13	31.0
Private-Sector Entity	7	16.7
TMA	4	9.5
Other	7	16.7
Total Responding Agencies	42	100

Note: Multiple responses allowed; percentages do not add to 100%.
TMA = Transportation Management Association.

TABLE 16
RESPONSIBILITY FOR CHANGES TO THE CIRCULATOR

Responsible Entity	No. of Agencies Responding	% Agencies Responding
Transit Agency	32	76.2
City	14	33.3
Private-Sector Entity	2	4.8
TMA	2	4.8
Other	3	7.1
Total Responding Agencies	42	100

Note: Multiple responses allowed; percentages do not add to 100%.
TMA = Transportation Management Association.

TABLE 17
PRIMARY RESPONSIBILITY FOR DAY-TO-DAY OPERATION OF THE DOWNTOWN CIRCULATOR

Responsible Entity	No. of Agencies Responding	% Agencies Responding
Transit Agency	32	76.2
City	4	9.5
Private-Sector Entity	2	4.8
TMA	1	2.4
Other	3	7.1
Total Responding Agencies	42	100

TMA = Transportation Management Association.

Table 18 shows the nature of the interaction in the eight cases where the transit agency does not have primary responsibility for day-to-day operations. The relationship between the responsible entity and the transit agency is characterized by cooperation; no respondent reported a hostile relationship with the transit agency.

Table 19 presents funding sources for the downtown circulator. The most common arrangement (41% of respondents) is for the transit agency to pay all costs; however, there are a variety of other funding situations. "Other" responses included more complex combinations of funding sources; partial or full funding from the state, the county, the metropolitan planning organization (MPO); and parking authorities; and fare subsidies from the city or the private sector. Half of the respondents indicated that the transit agency does not use federal funds for the downtown circulator, 44% indicated that federal funds were used, and 6% were not sure.

Table 20 elaborates on private-sector contributions. The private sector participates in circulator funding primarily through downtown businesses or business improvement districts. "Other" responses include a ski resort, private development revenue, and the TMA, but largely redirecting county grants and taxes back to the county.

OPERATION

Several different types of vehicles are used as downtown circulators, as shown in Table 21. Replica trolleys and historic streetcars are appealing, but many agencies use regular transit buses. These are often differentiated with a special paint scheme or other means of branding, as indicated in Table 22. The "Other" vehicle in Table 21 is a single-car, light rail vehicle.

Tables 23 and 24 indicate that the transit agency is most likely to purchase and maintain the vehicles. "Other" purchasers include the county, TMA, contractor, MPO, and student government. "Other" maintainers include the county and a combination of the county and the contractor.

TABLE 18
INTERACTION WITH THE TRANSIT AGENCY REGARDING THE DOWNTOWN CIRCULATOR

Nature of Interaction	No. of Agencies Responding	% Agencies Responding
Cooperation—Contact as Needed	4	50.0
Close Cooperation—Frequent Contact (at least weekly)	3	37.5
Neutral—The Circulator Is Viewed as a Separate Entity	1	12.5
Total Responding Agencies	8	100

TABLE 19
FUNDING FOR THE DOWNTOWN CIRCULATOR

Funding Source	No. of Agencies Responding	% Agencies Responding
Transit agency pays all costs	17	40.5
Transit agency splits costs with private sector	7	16.7
Transit agency splits costs with city/other public entity	6	14.3
City pays all costs	5	11.9
Grant to city specifically for the circulator	2	4.8
Grant to transit agency specifically for the circulator	1	2.4
City splits costs with private sector	1	2.4
Other	10	23.8
Total Responding Agencies	42	100

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 20
PRIVATE-SECTOR FUNDING OF DOWNTOWN CIRCULATORS

Private-Sector Entity	No. of Agencies Responding	% Agencies Responding
Downtown Businesses or Business Improvement Districts	5	50.0
TMA	1	10.0
Tourism Organization	1	10.0
Other	3	30.0
Total Responding Agencies	10	100

TMA = Transportation Management Association.

TABLE 21
VEHICLES USED AS DOWNTOWN CIRCULATORS

Vehicle	No. of Agencies Responding	% Agencies Responding
Rubber Tired Trolley/Historic Streetcar	13	31.7
Transit Bus 30 Feet or Larger	7	17.1
Transit Bus Under 30 Feet	7	17.1
Mix of Vehicles	7	17.1
Electric or Electric-Hybrid Vehicle	3	7.3
Cutaway	1	2.4
Steel Wheel Trolley	1	2.4
Van	1	2.4
Other	1	2.4
Total Responding Agencies	41	100

Note: Percentages do not add to 100% due to rounding.

TABLE 22
BRANDING OF DOWNTOWN CIRCULATOR VEHICLES

Specially Branded?	No. of Agencies Responding	% Agencies Responding
Yes	26	63.4
No	15	36.6
Total Responding Agencies	41	100

TABLE 23
WHO PURCHASES THE VEHICLES?

Vehicle Purchaser	No. of Agencies Responding	% Agencies Responding
Transit Agency	32	78.0
City	4	9.8
Other	5	12.2
Total Responding Agencies	41	100

TABLE 24
WHO MAINTAINS THE VEHICLES?

Vehicle Maintainer	No. of Agencies Responding	% Agencies Responding
Transit Agency	27	65.9
Contractor	10	24.4
City	2	4.9
Other	2	4.9
Total Responding Agencies	41	100

Table 25 shows start and end times for the downtown circulator by day of the week. The most common start time is during the 6:00 a.m. hour on weekdays, during the 9:00 a.m. hour on Saturday, and during the 10:00 a.m. hour on Sunday. The most common end time (defined as the start time of the final trip) is during the 6:00 p.m. hour on weekdays and Sunday and at or after midnight on Saturday.

Table 26 shows spans of service and headways for the downtown circulator by day of the week. The table reports median, minimum, and maximum spans and headways. Most respondents provided the prevailing headway throughout the day, but several reported a range of headways. Prevailing headway and range of headways are shown separately in Table 26. Span of service is longest on weekdays and shortest on Sunday. Median prevailing headways are 15 min on weekdays and Saturday and 12 min on Sunday. The apparent anomaly of more frequent service on Sunday occurs because only 24 circulators out of a total of 45 operate on Sunday and these have the most frequent service. Median ranges of headways are shortest on weekdays and longest on Sunday.

Table 27 indicates that the majority of respondents do not charge a fare on their downtown circulator. The fare is a nominal amount (20 or 25 cents) for 6 of the 16 systems that specified a fare. One surprise noted in the table is that seven agencies charge $1.00 or more for downtown circulator service. Three of these agencies have tourists as their primary market, including two that charge the highest fare ($2.00). In three other cases, the downtown circulator fare is less than the base adult fare on the transit system. In the seventh case, the fare for the downtown circulator is identical to the regular transit fare.

A wide variety of fare media is accepted on the downtown circulator, as shown in Table 28. Cash is almost universally accepted, and transit agency passes are also a common means of payment. “Other” responses include a smart card or regional electronic monthly pass, an all-day individual or family circulator pass, no fare for seniors, and occasional prepaid fare agreement with a specific convention that allows attendees to ride free with their convention ID.

Introduction of or revisions to a downtown circulator route might offer the opportunity to restructure other routes in the downtown area. Most respondents indicated that this did not occur (see Table 29); however, 13 agencies did change other routes as a result of the circulator. In most cases, these agencies streamlined routes in the downtown area and facilitated transfers between regular routes and the circulator.

Agencies have taken different approaches to the integration of the downtown circulator with the transit network, as shown in Table 30. Connections are provided at major transfer points for the majority of circulators. Almost 20% of respondents indicated that there is no integration and that the circulator is separate from the rest of the transit system. Lack of integration

TABLE 25
START AND END TIMES FOR DOWNTOWN CIRCULATORS BY DAY OF THE WEEK

Time	Weekday		Saturday		Sunday	
	No. of Agencies Responding	% Agencies Responding	No. of Agencies Responding	% Agencies Responding	No. of Agencies Responding	% Agencies Responding
Start Time						
Before 6 a.m.	10	22.2	4	12.5	3	12.5
6–6:59 a.m.	15	33.3	3	9.4	1	4.2
7–7:59 a.m.	7	15.6	3	9.4	2	8.3
8–8:59 a.m.	4	8.9	5	15.6	3	12.5
9–9:59 a.m.	4	8.9	9	28.1	5	20.8
10–10:59 a.m.	3	6.7	6	18.8	8	33.3
11 a.m. and after	2	4.4	2	6.3	2	8.3
Total	45	100	32	100	24	100
End Time						
Before 5 p.m.	2	4.4	—	—	1	4.2
5–5:59 p.m.	6	13.3	6	18.8	4	16.7
6–6:59 p.m.	10	22.2	7	21.9	7	29.2
7–7:59 p.m.	8	17.8	4	12.5	3	12.5
8–8:59 p.m.	2	4.4	—	—	1	4.2
9–9:59 p.m.	4	8.9	1	3.1	1	4.2
10–10:59 p.m.	2	4.4	1	3.1	1	4.2
11–11:59 p.m.	4	8.9	4	12.5	1	4.2
12 a.m. and after	7	15.6	9	28.1	5	20.8
Total	45	100	32	100	24	100

TABLE 26
SPANS OF SERVICE AND HEADWAYS FOR DOWNTOWN CIRCULATORS BY DAY OF THE WEEK

Measure	Weekday	Saturday	Sunday
Median Span	13:00	11:25	9:38
Minimum Span	3:00	6:29	5:51
Maximum Span	21:00	20:30	19:30
Median Prevailing Headway	15	15	12
Minimum Prevailing Headway	6	3.75	3.75
Maximum Prevailing Headway	60	60	60
Median Headway Range	10 to 15	12 to 15	12.5 to 17.5
Minimum Headway Range	1.25 to 3.75	7 to 10	7 to 10
Maximum Headway Range	20 to 30	20 to 30	20 to 30

TABLE 27
DOWNTOWN CIRCULATOR FARE

Fare	No. of Agencies Responding	% Agencies Responding
Free	23	54.8
20 to 25 Cents	6	14.3
50 to 75 Cents	4	9.5
$1.00 or Higher	7	16.7
Fare Not Specified	2	4.8
Total Responding Agencies	42	100

Note: Percentages do not add to 100% due to rounding.

TABLE 28
FARE MEDIA ACCEPTED ON DOWNTOWN CIRCULATOR

Fare Media	No. of Agencies Responding	% Agencies Responding
Cash	17	94.4
Transit Agency Monthly Passes	14	77.8
Transit Agency Day Passes	12	66.7
Transit Agency Other Passes	12	66.7
Transit Agency Transfers	8	44.4
Transfers Within Circulator System	6	33.3
Downtown Circulator Passes	4	22.2
Tokens	4	22.2
Other	5	27.8
Total Responding Agencies	18	100%

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 29
CHANGES TO OTHER ROUTES AS A RESULT OF THE DOWNTOWN CIRCULATOR

Changes to Other Routes	No. of Agencies Responding	% Agencies Responding
No	27	67.5
Yes	13	32.5
Total Responding Agencies	40	100

TABLE 31
ADA ISSUES ASSOCIATED WITH THE CIRCULATOR

ADA Issues	No. of Agencies Responding	% Agencies Responding
No	34	82.9
Yes	5	12.2
Unsure	2	4.9
Total Responding Agencies	41	100

may be reasonable if the circulator market is tourists and visitors, and this is the case in five of the eight agencies that reported no integration.

Table 31 shows that more than 80% of respondents reported no issues related to complementary Americans with Disabilities Act (ADA) service associated with the downtown circulator. ADA issues that have arisen include mandated free complementary ADA service, a lower fare for ADA service within three-quarters of a mile of the downtown circulator, and difficulty maintaining various style mechanical lifts on a mixed fleet of vintage rail trolleys.

Survey respondents described various elements in terms of whether they were constraining factors in the start-up and ongoing operation of the downtown circulator. Table 32 summarizes the results. Funding issues are the only elements characterized as major constraints at a majority of programs. "Other" issues include city-requested expansion without willingness to increase the city's subsidy and the cost and added maintenance of specially designed buses for the circulator service.

Respondents also answered an open-ended question to describe the major constraint affecting a given program. Table 33 summarizes the responses. Examples of specific responses are noted here:

> To be successful the routes need to operate much more frequently. Our system is at capacity. We need more buses and funds to operate to expand this service or we take it away from other areas. Currently these routes are not particularly high producers so there is no logic in taking from others to increase these.

> Identifying the market was difficult because there were elements that could be useful for all shoppers, lunchtime, evening events, or commuters. However, there was limited funding, so it was impossible to serve all those markets effectively. We settled on lunchtime trips as the primary market.

> The City does not receive any regional transit money for the services and must use local funds for the services. There are high expectations from our stakeholders for services, and these cannot be met with our current funding levels. It is difficult to get all the stakeholders to agree on the purpose of the service.

> Zero local (i.e., city and county) funding available. Trolley funding must be from agency general fund and is at the expense of other more productive services. Routing tends to stretch in order to cover more destinations. Stretching the route creates a longer ride which discourages ridership and it also creates the need for additional vehicles in order to maintain frequency. More vehicles = more cost.

> The trolley routes are a 'nice to have.' The resources devoted to the trolley routes may be more effectively spent on other routes.

MARKETING

Table 34 shows the responsibilities for marketing the downtown circulator. A majority of respondents named the transit agency as having primary responsibility for marketing. Agencies promoting tourism, hotels, the convention center, and downtown employers are likely to participate in marketing efforts.

A wide variety of marketing activities are undertaken for downtown circulators. Table 35 shows marketing activities mentioned by at least 10% of all respondents. Interesting marketing activities not included in Table 35 include pocket

TABLE 30
INTEGRATION OF DOWNTOWN CIRCULATOR WITH OTHER TRANSIT ROUTES

Means of Integration	No. of Agencies Responding	% Agencies Responding
Connections at Major Transfer Points	33	80.5
Added Stops on Circulator	11	26.8
No Integration—Circulator Is Separate	8	19.5
No Duplication of Existing Route Segments	7	17.1
Fewer Stops on Circulator	1	2.4
Other	3	7.3
Total Responding Agencies	41	100

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 32
RATINGS OF POTENTIAL CONSTRAINTS

Potential Constraint	Major Constraint	Minor Constraint	Not a Constraint	No. of Agencies Responding
Funding in general	56%	18%	26%	39
Inability to identify a long-range funding source	40%	25%	35%	40
Parking policies in downtown	15%	35%	50%	40
Cooperation with new partners	8%	41%	51%	39
Difficulty in defining the route	18%	30%	53%	40
Maintaining interest among stakeholders	10%	38%	53%	40
Difficulty in defining the target market	8%	35%	58%	40
Use of federal funds	11%	32%	58%	38
Disagreements on fares/fare instruments	5%	23%	73%	40
Downtown–neighborhood tension	0%	18%	82%	39
Other	33%	0%	67%	6

Note: Percentages do not necessarily add to 100% due to rounding.

TABLE 33
MAJOR CONSTRAINTS FACING DOWNTOWN CIRCULATORS

Constraint	No. of Agencies Responding	% Agencies Responding
Operating Funding	16	57.1
Target Markets/Conflicting Interests	3	10.7
Parking Issues in Downtown	3	10.7
Justifiable? Nice to Have, but Not Necessary	2	7.1
Other	4	14.3
Total Responding Agencies	28	100

Note: Percentages do not add to 100% due to rounding.

TABLE 34
RESPONSIBILITY FOR MARKETING THE DOWNTOWN CIRCULATOR

Entity	Primary Responsibility		Also Participates	
	No. of Agencies Responding	% Agencies Responding	No. of Agencies Responding	% Agencies Responding
Transit Agency	27	69.2	7	17.9
City	7	17.9	13	33.3
Downtown Businesses	1	2.6	17	43.6
TMA	1	2.6	7	17.9
Agencies Promoting Tourism	1	2.6	24	61.5
Convention Center	—	—	16	41.0
Hotels	—	—	20	51.3
Downtown Employers	—	—	10	25.6
Other	—	—	4	10.3
Primary Responsibility Shared Among Multiple Agencies	2	5.1		
Total	39	100.0	39	100.0

Note: Multiple responses allowed for "participates in marketing"; percentages do not add to 100%.
TMA = Transportation Management Association.

TABLE 35
MARKETING ACTIVITIES IN SUPPORT OF THE DOWNTOWN CIRCULATOR

Activity	No. of Agencies Responding	% Agencies Responding
Website (agency and other)	13	35.1
Brochures	10	27.0
Cross-promotions with Downtown Groups/Others	9	24.3
Special Events Promotions	8	21.6
Schedule Distribution	8	21.6
Print Media Ads (newspapers, hotel publications)	7	18.9
Flyers	7	18.9
Signage at Stops/in Downtown	7	18.9
General Promotions	7	18.9
Partnerships with Hotels/Conventions	6	16.2
Vehicle Branding	4	10.8
Wayfinding Maps	4	10.8
Total Responding Agencies	37	100

Note: Percentages do not necessarily add to 100% due to rounding.

schedules, direct mail, video in hotels and on vehicles, unique shelters, and guerrilla marketing (flash mobs, a Twitter phenomenon in which a message is sent out to meet at a certain place and time).

RIDERSHIP AND PRODUCTIVITY

Ridership and productivity numbers can be broken down in a variety of ways. Table 36 presents ridership and productivity by service area population (used as a proxy for size of downtown). The table shows median ridership and productivity figures because averages can be unduly influenced by a few very high ridership systems. Median ridership and productivity is generally proportional to service area population. It should also be noted that reported productivity figures sometimes implied an unusually high or low number of revenue hours; it is possible that some respondents misinterpreted the question.

In Table 36, higher median ridership and productivity on weekends compared with weekdays is unexpected. The explanation is that circulators with high ridership are more likely to operate on Saturday and Sunday. Table 37 presents median ridership and productivity by the number of days per week that the downtown circulator is in operation. Weekday-only circulators have the lowest median ridership and productivity, whereas 7-day-a-week circulators have the highest.

Table 38 reports on downtown circulator ridership and productivity by day of the week and primary market for circulator service. Agencies reported the primary market for the circulator, but the large majority indicated that the primary market was not the sole market served. Downtown circulators oriented toward tourists and visitors had the highest median ridership and productivity. Circulators in Charlotte, Long Beach, Philadelphia, San Antonio, and Santa Barbara ranked highest in this category in terms of ridership.

SUMMARY

A total of 78 agencies reported on their experiences with downtown circulators. Sixty percent currently operate a circulator, whereas 23% discontinued and 17% never implemented

TABLE 36
MEDIAN RIDERSHIP AND PRODUCTIVITY OF DOWNTOWN CIRCULATOR BY DAY OF THE WEEK AND SERVICE AREA POPULATION

Measure	Service Area Population	Number	Weekday	Saturday	Sunday
Ridership	All	30	850	1,119	1,530
	Under 500,000	13	450	550	450
	500,000 to 1,000,000	8	1,100	500	1,460
	Over 1,000,000	9	4,376	5,200	2,700
Productivity (riders per revenue hour)	All	30	23	26	26
	Under 500,000	13	15	19	23
	500,000 to 1,000,000	8	18	22	23
	Over 1,000,000	9	45	33	29

TABLE 37
MEDIAN RIDERSHIP AND PRODUCTIVITY OF DOWNTOWN CIRCULATOR BY DAY OF THE WEEK AND DAYS OF OPERATION

Measure	Days of Operation	Number	Weekday	Saturday	Sunday
Ridership	All	30	850	1,119	1,530
	Weekday only	10	396	—	—
	Weekday/Saturday	4	513	375	—
	7 days a week	16	2,247	1,911	1,530
Productivity (riders per revenue hour)	All	30	23	26	26
	Weekday only	10	10	—	—
	Weekday/Saturday	4	17	15	—
	7 days a week	16	34	29	29

TABLE 38
MEDIAN RIDERSHIP AND PRODUCTIVITY OF DOWNTOWN CIRCULATOR BY DAY OF THE WEEK AND PRIMARY MARKET

Measure	Primary Market	Number	Weekday	Saturday	Sunday
Ridership	All	30	850	1,119	1,530
	Employees	12	688	1,119	1,115
	Tourists/Visitors	8	1,300	1,911	1,556
	Multiple/Other	10	446	434	231
Productivity (riders per revenue hour)	All	30	23	26	26
	Employees	12	30	26	27
	Tourists/Visitors	8	25	33	29
	Multiple/Other	10	15	17	14

a downtown circulator. Inadequate funding and cost were the principal reasons for never implementing a circulator. Low ridership was the major reason for discontinuation. Low productivity, loss of the funding source, and cost also played a role in discontinuation.

In most cases, the impetus to begin a downtown circulator came from the transit agency, downtown organizations, and elected officials. These agencies and groups were the major stakeholders in the circulator. Improving mobility throughout downtown was most often cited as the purpose of the circulator, although several other goals were also reported by a majority of respondents. The champion of the circulator was typically either the transit agency general manager, a member of a downtown interest, or an elected official.

Employees and tourists/visitors are the most common primary markets for a downtown circulator, but nearly all agencies reported that the circulator was designed to serve more than one market. Close to half of respondents indicated that the market for the circulator had changed over time, suggesting the need for flexibility in designing service. Almost 75% of respondents have changed the routing of the circulator to serve new markets.

Slightly more than half of respondents have a downtown circulator network with more than one route. A single loop route and a combination of different types of routes were the most common responses. The transit agency is typically responsible for the original design of and any changes to the route, as well as for day-to-day operation.

The most common funding arrangement (41% of respondents) is for the transit agency to pay all costs; however, there are a variety of other funding situations. The private sector participates in circulator funding primarily through downtown businesses or business improvement districts. Half of the respondents indicated that the transit agency does not use federal funds for the downtown circulator.

Several different types of vehicles are used as downtown circulators. Replica trolleys and historic streetcars are very appealing; however, many agencies use regular transit buses. These are often differentiated with a special paint scheme or other means of branding. The transit agency is most likely to purchase and maintain the vehicles.

The most common start time is during the 6:00 a.m. hour on weekdays, during the 9:00 a.m. hour on Saturday, and during the 10:00 a.m. hour on Sunday. The most common end time (defined as the start time of the final trip) is during the 6:00 p.m. hour on weekdays and Sunday and at or after midnight on Saturday. Span of service is longest on weekdays and shortest on Sunday. Median prevailing headways are 15 min on weekdays and Saturday and 12 min on Sunday (this is owing to less frequent circulators not operating on Sunday).

Most respondents do not charge a fare on their downtown circulator. When a fare is charged it is a nominal amount (20 or

25 cents) for 6 of the 16 systems that specified a fare. A wide variety of fare media is accepted on the downtown circulator.

Introduction of, or revisions to, a downtown circulator route might offer the opportunity to restructure other routes in the downtown area. Most respondents noted that introduction of the circulator did not result in changes to other routes. Agencies that did change other routes typically streamlined routes in the downtown area and facilitated transfers between regular routes and the circulator. Agencies have taken different approaches to the integration of the downtown circulator with the transit network. Connections are provided at major transfer points for the majority of circulators, but almost 20% of respondents indicated that there is no integration and that the circulator is separate from the rest of the transit system. More than 80% of respondents reported no issues related to complementary ADA service associated with the downtown circulator.

Survey respondents described various elements in terms of whether they were constraining factors in the start-up and ongoing operation of the downtown circulator. Funding issues are the only elements characterized as major constraints at a majority of agencies. Operating funding dominated the list of major constraints.

A majority of respondents named the transit agency as having overall responsibility for marketing. Agencies promoting tourism, hotels, the convention center, and downtown employers are likely to participate in marketing efforts. A wide variety of marketing activities are undertaken for downtown circulators.

For all circulators in the sample, the median ridership was 600 on weekdays (30 circulators), 1,100 on Saturday (20 circulators), and 1,500 on Sunday (16 circulators). Median productivity (measured as riders per revenue hour) was 23 on weekdays and 26 on both Saturday and Sunday. These results are misleading, because circulators with high ridership are more likely to operate on Saturday and Sunday. After controlling for the number of days per week of operation, median ridership and productivity are highest on weekdays. Median ridership and productivity is generally proportional to service area population; downtown circulators in larger cities have higher ridership and are more productive. Downtown circulators oriented toward tourists and visitors had the highest median ridership and productivity. Circulators in Charlotte, Long Beach, Philadelphia, San Antonio, and Santa Barbara ranked highest in the tourist/visitor category in terms of ridership.

CHAPTER FOUR

AGENCY ASSESSMENT OF DOWNTOWN CIRCULATORS

INTRODUCTION

This is the second of two chapters presenting the results of a survey of transit agencies regarding downtown circulators. The previous chapter addressed survey results related to the incentive for beginning a downtown circulator, target markets, operation, administration, and marketing. This chapter's focus is on agencies' evaluations of the programs. Specific topics include agency satisfaction with the downtown circulator, benefits and drawbacks, potential improvements, and lessons learned.

RATINGS OF DOWNTOWN CIRCULATORS

Table 39 shows transit agencies' ratings of their downtown circulators. Most respondents (72%) rated the circulator as either very successful or somewhat successful. Approximately 10% of respondents gave the circulator a somewhat successful or very unsuccessful rating.

Table 40 presents the primary benefits of the downtown circulator. These are responses to an open-ended question. The most frequently cited benefits include downtown mobility and circulation, greater downtown access for transit riders, a way for tourists to get around, a means for employees to get around downtown, and positive impacts on transit, including increased ridership and revenue, very frequent downtown service, improved image, and an opportunity to streamline other routes.

Table 41 summarizes the drawbacks of downtown circulators, based on responses to an open-ended question. The most frequently cited problems involve the tension between providing very frequent and direct service versus serving all locations that want to be served, low speeds resulting from downtown congestion and thus difficulty in maintaining schedules, and negative transit impacts (takes riders from other routes, maintenance expense, and confusion for regular system riders). Low ridership, expense, irregular demand, and inadequate funding are also concerns. Other issues mentioned by fewer than 10% of respondents are grouped in the "Other" category in the table, including use by transients, marketing the service, and vehicle issues. Eleven percent of all respondents reported no drawbacks.

Table 42 provides responses to a question about whether downtown's changing role (e.g., from a traditional CBD to an activity center with a mix of jobs, retail, and housing) influenced the design and operation of the downtown circulator. Most respondents reported either no effect or no significant impact. Several agencies modified the circulator to serve nonresidential trip generators such as hospitals, employment centers, historic sites, retail, schools and universities, and entertainment districts. New residential areas were cited by 13% of respondents. Some of these destinations required changed or expanded times of service.

Respondents were asked, "If you could change ONE aspect in the process of designing and implementing the downtown circulator, what would you change?" Table 43 summarizes the results.

Improvements related to more and more certain funding from a variety of sources were most frequently mentioned. A variety of other responses were also received, some of which conflicted with each other; for example, more public input versus limited outreach efforts or implement versus discontinue a fare-free zone. This question elicited the greatest variety of comments and the least convergence on a clear set of desired improvements.

LESSONS LEARNED

Survey respondents shared lessons learned from the planning, implementation, and operation of their downtown circulators. The lessons learned were grouped into ten broad categories, as shown in Table 44. Lessons regarding partnerships led the list of topic areas, followed by service design and branding.

Responses are presented by category here. All comments are reported verbatim as expressed by agency respondents.

Partnerships

- Partnerships are both easy and essential to success.
- Implement circulators as part of an overall downtown development, parking, and circulation plan.
- We actually set up a separate nonprofit corporation with the business improvement districts and convention/tourism bureau to brand the service and use the marketing expertise of these established groups.
- Work closely with downtown business associations and stakeholders to make sure that downtown interests have

TABLE 39
AGENCY RATING OF DOWNTOWN CIRCULATOR

Rating	No. of Agencies Responding	% Agencies Responding
Very Successful	17	36.2
Somewhat Successful	17	36.2
Neutral	8	17.0
Somewhat Unsuccessful	4	8.5
Very Unsuccessful	1	2.1
Total Responding Agencies	47	100

strong ownership in circulator service and fare zone, so changes have been carefully and fully discussed before implementation.

- Get local support from businesses and attractions to help fund service.
- Meet with your business community supporters quarterly to discuss the operations and changes to the routing.
- Bring the various stakeholders together when service changes are made to review the reasons behind them and build consensus.

TABLE 40
PRIMARY BENEFITS OF THE DOWNTOWN CIRCULATOR

Benefit	No. of Agencies Responding	% Agencies Responding
Downtown mobility/circulation	17	37.0
Greater downtown access for transit riders	15	32.6
Helps tourists get around	13	28.3
Downtown workers can get around more easily	11	23.9
Positive transit impacts	10	21.7
Free/inexpensive fares	8	17.4
Positive image attracts nontransit riders	8	17.4
Supports conventions/other partnerships	8	17.4
Better access for downtown businesses	7	15.2
Supports revitalization/economic development	7	15.2
Reduced downtown parking demand	6	13.0
Other	2	4.3
Total Responding Agencies	47	100

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 41
DRAWBACKS OF DOWNTOWN CIRCULATORS

Drawback	No. of Agencies Responding	% Agencies Responding
Frequency/directness vs. coverage	8	18.2
Slow due to congestion downtown; difficult to maintain schedules	7	15.9
Negative transit impacts	7	15.9
Low ridership	6	13.6
High cost	6	13.6
Irregular demand; over-capacity at peaks	6	13.6
None	5	11.4
Insufficient funding overall/from partners	4	9.1
Other	22	50.0
Total Responding Agencies	44	100

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 42
IMPACT OF DOWNTOWN'S CHANGING ROLE ON CIRCULATOR

Effect of Downtowns Chan ging Role	No. of Agencies Responding	% Agencies Responding
None/no significant effect	26	56.5
Modified to serve nonresidential development	8	17.4
Modified to serve new residential areas in downtown	6	13.0
Changed/expanded times of service	4	8.7
Other	7	15.2
Total Responding Agencies	46	100

Note: Multiple responses allowed; percentages do not add to 100%.

TABLE 43
ONE IMPROVEMENT TO DESIGNING AND IMPLEMENTING THE DOWNTOWN CIRCULATOR

Improvement	No. of Agencies Responding	% Agencies Responding
More funding; support and buy-in from downtown interests	7	17.5
No change/not sure	5	12.5
Dedicated right-of-way/other traffic engineering measures in support	3	7.5
Expanded service area/more frequent service	3	7.5
Clear performance targets	2	5.0
Acknowledge need for flexibility	2	5.0
Brand buses and stops	2	5.0
Better forecasts	2	5.0
Better/different vehicles	2	5.0
Other	12	30.0
Total Responding Agencies	40	100

- Obtain strong community support. This type of implementation could be jointly developed and supported by the City Planning Staff, resident community, and business stakeholders, in addition to a transit agency.
- The downtown circulator is a vital mobility/land use interface element in the overall downtown development plan.
- To maximize service area and delivery, coordinate with all downtown employers, business associations, chambers, downtown residents, and so on to ensure the circulator service is all-encompassing.
- The most important lesson my agency learned was to enlist a diverse group of "stakeholders" in the design of the service. Government, business, retail, students, etc., were involved, which resulted in better routing and produced a sense of ownership or "buy in" of the circulator.
- It helps to have supportive partners that are willing to lobby for the service; possibly a downtown business association, convention bureau, or some level of government.

TABLE 44
LESSONS LEARNED

Lessons Learned Category	No. of Agencies Responding	% Agencies Responding
Partnerships	16	43.2
Service Design	14	37.8
Branding/Image	10	27.0
Fares	7	18.9
Funding Source	6	16.2
Demand/Criteria	5	13.5
Flexibility	4	10.8
Focus on Particular Market	4	10.8
Vehicles	4	10.8
Operation	3	8.1
Total Responding Agencies	37	100

Note: Multiple responses allowed; percentages do not add to 100%.

- A positive lesson learned in our case is that having the sidewalks cleaned and maintained by the business improvement district, along with a special police patrol provided by the business improvement districts, has contributed to the success of the downtown circulator.
- Take sufficient time to coordinate with other agencies/municipalities to be clear on the role of the circulator system.
- Get feedback from large employers, visitors bureau, convention centers, hotels, etc., to see what their needs are (to avoid duplication if possible with other shuttle operators) to allow you to plan effectively for span of service, route alignment, connections to regional service, etc.
- Involving the local government in the planning process has been invaluable. The city's land development code and land use regulations are supportive of transit and mobility, which has allowed the CBD to grow and thrive along with the success of our circulator.
- Business associations have high expectations, low budgets, and short attention spans.
- Public participation, public participation, public participation. The city, downtown stakeholders, and general public need to own a stake in the downtown circulator. Communication of the public process to all cannot please all, but it provides the information to clarify how the decisions were made.

Service Design

- Trips could operate frequently enough and consistently so customers do not have to refer to a schedule.
- The circulator will not be used unless the service is frequent and convenient.
- Frequent service is needed during lunch hours to appeal to workers going to lunch.
- Competition with other modes can limit ridership. Our city is a 20-min town; that is, most of the suburbs are within a 20-min ride and most of the downtown CBD is within a 20-min walk. If the bus route is too circuitous and the headway lengthy (say greater than 15 min), people will walk and ridership won't develop, no matter what the fare is. The fare for our circulator was 10 cents and ridership was still dismal.
- The loops must not be too big—no more than 20 to 25 min. Keep it as simple as possible—avoid a lot of side street deviations.
- Try to intersect with other through routes at easy to transfer locations.
- Try to connect as many "dots" as possible that would serve as destinations for the customers, but in a short route would allow for good frequency.
- It is important that service frequency be somewhere between every 10 to 15 min, 20 min at the most.
- Frequent headways are important for a successful circulator.
- Do not compromise on your headway performance and offer consistent headways for the entire span of service—

variations in headway only confuse people and result in the lose of choice riders. Protect this at all costs and cut your span or route length before considering any lengthening of headway. The 10-min headway is a sweet spot and draws in choice riders who would otherwise not choose transit. Try to meet this criterion even though it is expensive.
- Make it simple.
- Connectivity to the entire public transit system is important.
- Using some portions of the fixed guideway for regular fixed-route service has increased our revenue-miles on the fixed guideway segment as well as removed bus traffic from the general use lanes within some parts of the CBD. This was not something originally thought of when first developing the downtown circulator route and would be something to consider in planning new routes.
- Popularity of the circulator led to reductions on other routes first and loss of revenue/ridership, whereas the circulator (which essentially replaced walking trips) was unchanged.
- While maintaining regular contact with business community supporters, maintain your role as the expert in the design of efficient transit service.
- We resisted outside pressure to change the route in ways that from a planning perspective did not make sense.
- Do not duplicate existing fixed-route bus service. It is important that circulators only be implemented to fill in "gaps" in the transit system.

Branding and Attracting New Riders

- The downtown circulator is the "face" of your transit system to citizens and visitors. Friendly drivers, attractive vehicles (such as trolleys), open air sides (weather permitting), and frequent headways are all important for a successful circulator.
- Build a strong brand identity with support from the business community.
- Service definitely needs to be branded to stand out from the rest of the transit service. This is extremely important if the potential users are tourists or visitors to a city who would not be familiar with transit.
- Branding of the service and the buses to stand out from the regular transit fleet is a must, especially if the target market is nontransit users.
- A buy-in from the transit union to allow for a special selection of drivers that are trained as community ambassadors/visitor guides is important if going for the convention and tourist market rather than normal transit users.
- Design a unique and interesting paint and graphics scheme.
- Although our buses were branded in a whimsical, fun, eye-catching way, many critics believed the service would be even more popular with the tourists if we used trolley-themed vehicles.
- The downtown circulator will be nonriders' exposure to transit.
- Think a lot about the numbering or naming.
- Set aside a good amount of resources for marketing. It is important that the service be highly differentiated from other transit.
- Provide good route descriptions, route maps, and simple fare information.

Fares

- Free fare was a good choice. High ridership is the success measure for a downtown circulator.
- Make it free. Your ridership will be greater and the little revenue associated with a modest fare isn't worth the cost to manage the fareboxes.
- Make the shuttle free, and do not change the route. Resist outside pressure to charge a fare.
- Because the circulator is free the service is very popular within the CBD.
- No fare is nice, or some small amount such as 25 or 50 cents per ride.
- The existence of a Ride Free Area (RFA) in our major downtown has encouraged other local cities to ask the transit agency to establish RFAs in their downtown areas, and several studies have been done to look at setting up one or more additional RFAs. However, the advent of a fiscal crisis has led to new questions about the effectiveness of an RFA and the amount of fare revenue lost. At a time when multiple urban centers have developed outside the traditional downtown, the existence of an RFA seems very downtown-centric. However, the RFA remains politically popular in some quarters, as it has been part of the local transit landscape for such a long time, and it remains to be seen whether concerns about increasing system revenues to close the transit budget deficit will result in reconsideration of the RFA.
- Take time to think about the fare.

Funding Source

- A subsidy is required to operate; circulators don't make money.
- Funding for the operations is provided by the city and paid for through parking revenues and tax increment funds from the downtown community redevelopment agency.
- Identify a stable, reliable funding source (in our case, the parking tax provides 75% of the operating cost). You can't make this work based on voluntary contributions.
- A free or low fare requires some dedicated funding to support the service.
- Carefully define infrastructure responsibilities and require that some percentage of the operating costs and/or infrastructure costs be reimbursed from either the municipality or a business improvement district. Not all of the issues were anticipated in our case.

- If the service will be "free," get the full cost of the service paid upfront from sponsors.

Demand/Criteria

- If planners say it will not work or ridership will be low, listen.
- Make sure that the demand for the service is real and not just a public relations exercise for the businesses involved.
- Much of the success of our downtown circulator is because there was already a large potential customer base in place. It is probably not realistic to expect that "if you build it they will come"; that is, that a new circulator will bring customers to a struggling downtown.
- Set performance criteria and governance structures up front.
- Work closely with stakeholders to make sure that there are clear performance targets.

Flexibility

- Work closely with stakeholders to make sure that adjustments can be made in the future depending on performance levels and budget availability. In our case, downtown interests have strong ownership in our circulator service and fare zone, so changes have been carefully and fully discussed before implementation.
- Be reactive to your environment to maximize the efficiency of your service.
- Build in a regular cycle of reviewing your downtown circulator service to ensure that you are capturing changes to the downtown landscape.
- Start with a very small scale in the area and service span thought to be most useful for success. In our case, the ridership did not materialize. Although the circulator was not a success, the cost exposure was relatively small. On the other hand, this leaves some room for debate about whether a more expensive approach (unique vehicle and marketing blitz) may have led to a better outcome.

Markets

- You can't please everyone all of the time.
- Do not try to be all things to all people. This tends to spread the service too thinly and make it lose focus on any particular mission (i.e., is it supposed to be primarily for employment circulation, housing, noontime lunch shuttle, etc.).
- What is the purpose or target market for the service? In our case, it was to serve the convention and visitors market. Try to connect destinations for the customers with a short route that allows for good frequency.
- A few years ago, the agency offered a "corresponding" Lunch Trolley along an abbreviated route in the same downtown area. This was scrapped on account of a lack of utilization, and likely because of the short distance from point A to point B.

Vehicles

- The faux trolley buses operated on the downtown circulator became prohibitively expensive to maintain in later years. Every part was a special order and only specific maintenance personnel had the knowledge base to work on them.
- One factor that has made our shuttle very popular and well known is the use of clean and quiet battery–electric shuttles. However, an agency considering a similar technology needs to understand the special maintenance needs to keep a specialized fleet such as this in operation.
- Perhaps use a rubber-tired "vintage"-style themed trolley instead of the 29-foot buses we used.
- Use ADA accessible ramps instead of mechanical lifts at streetcar station platforms if low-floor vehicles are not an option. Maintenance of mechanical lifts is expensive and disruptive to patrons with disabilities when failures occur.

Operation

- Pay close attention to stop spacing and traffic signal coordination issues.
- Explore strategies to make the circulator faster and thus more convenient.
- Double the recovery/layover time you think you need.

SUMMARY

This chapter has described surveyed agency assessments of downtown circulators. Findings include:

- Results regarding the success of the downtown circulator are positive. Thirty-six percent of survey respondents rated the circulator as very successful and 36% rated it as somewhat successful.
- The primary benefits of the downtown circulator include improved downtown mobility and circulation, greater downtown access for transit riders, a way for tourists to get around, a means for employees to get around downtown, and positive impacts on transit (increased ridership and revenue, very frequent downtown service, and an opportunity to streamline other routes).
- Drawbacks to the downtown circulator involve the tension between providing very frequent and direct service versus serving all locations that want to be served, low speeds owing to downtown congestion, difficulty in maintaining schedules, and negative transit impacts (circulator takes riders from other routes, maintenance

expense, and confusion for regular system riders). Low ridership, expense, irregular demand, and inadequate funding are also concerns. Eleven percent of survey respondents reported no drawbacks.

- Most respondents reported no significant impact to the design and operation of the downtown circulator as a result of downtown's changing role. Several agencies modified the circulator to serve nonresidential trip generators, such as hospitals, employment centers, historic sites, retail, schools and universities, and entertainment districts. New residential areas were cited by 13% of respondents. Some of these destinations required changed or expanded times of service.
- Improvements related to more and more certain funding from a variety of sources were most frequently mentioned. Many other responses were also received, some of which conflicted with each other; for example, more public input versus limited outreach efforts or implement versus discontinue a fare-free zone. This question elicited the greatest variety of comments and the least convergence on a clear set of desired improvements.
- Survey respondents shared lessons learned from the planning, implementation, and operation of downtown circulators. The lessons learned were grouped into ten broad categories. Lessons regarding partnerships led the list of topic areas, followed by service design, and branding/attracting new riders. A total of 82 responses are provided within these 10 categories.

The following chapter describes findings from seven case studies that explore issues related to the downtown circulators in greater detail.

CHAPTER FIVE

CASE STUDIES

INTRODUCTION

The synthesis survey results provide an overview of the major issues regarding downtown circulators. Following a review of these results, seven agencies were chosen as case study sites. Personnel directly involved with these programs agreed to be interviewed by telephone. In some cases, more than one person at an agency either participated in the interviews or reviewed the draft summary of the case study. The case studies provide additional details on innovative and successful practices, guidance in the form of lessons learned, and insights into how "success" is defined for a downtown circulator.

The selection process for case studies had several criteria: (1) include transit agencies of various sizes in different parts of the country; (2) include agencies at various stages of the implementation and operation of downtown circulators; (3) select a variety of agencies charged with operating or overseeing the operation of downtown circulators, including transit agencies, municipal DOTs, and a private-sector entity; (4) include at least one agency that has discontinued its downtown circulator to reflect real difficulties facing downtown circulators. Almost 80% of responding agencies offered to be interviewed as a case study. As shown by examples from non-case study respondents in chapters three and four, these agencies offered very interesting responses based on their experiences. Four of the seven case study agencies are located in the Northeast Corridor, but each of these has had success in implementing a downtown circulator. The seven agencies chosen provide a representative overview of the current state of downtown circulators.

Figure 2 in chapter one showed the location of the case study cities, which are:

- Baltimore, Maryland: Baltimore City Department of Transportation
- Hartford, Connecticut: CTTRANSIT
- Los Angeles, California: Los Angeles Department of Transportation
- Louisville, Kentucky: Transit Authority of River City
- Philadelphia, Pennsylvania: Center City District
- Washington, D.C.: District Department of Transportation
- Austin, Texas: Capital Metro

The case studies summarize survey responses and interview observations from each agency. The introduction to each case study includes a basic description of the system, with data taken from FY 2008 National Transit Database reports. The interviews explored issues raised by the survey responses in greater depth.

BALTIMORE CITY DEPARTMENT OF TRANSPORTATION—BALTIMORE, MD

Baltimore City DOT operates the Charm City Circulator in downtown Baltimore. All other transit in Baltimore is the responsibility of the Maryland Transit Administration (MTA), the regional transit operator. MTA's service area population is 2.1 million. MTA operates 521 peak buses directly and another 175 under contract, along with 54 heavy rail vehicles and 36 light rail vehicles. Annual ridership on all services operated is 117.7 million.

Circulator Origins and Operation

There have been three previous efforts to establish downtown circulators in Baltimore over the last 20 years. All efforts were reasonably popular, but faltered on the lack of a sustainable funding source. Thus, when a downtown business group approached the city with a new idea for a downtown circulator, the city would not agree without identification of a sustainable funding source.

This most recent effort had a different outcome. The city's parking tax was increased by 25%, and this revenue provides 85% of the operating cost for the circulator. The remainder is funded through development impact fees and advertising. The city issued a request for proposals that defined the type of service it was seeking.

One route would not be enough to serve downtown Baltimore. Also, it was important to go beyond the traditional boundaries of the CBD to serve close-in residential neighborhoods that are very transit-oriented. With the urging of circulator advocates who did not want a typical bus, the Baltimore DOT insisted on a state-of-the-art hybrid bus for use on the circulator. For the first time, the DOT established bus lanes in

downtown along the heavily traveled Pratt–Lombard east–west, one-way pair served by the first circulator route. Finally, the DOT dedicated 5% of the budget for marketing.

The Orange Route, serving 28 stops on its roundtrip between Hollins Market west of downtown and Harbor East via Pratt and Lombard Streets, began operation in January 2010. The Orange Route operates weekdays every 10 min from 6:30 a.m. to 9 p.m. (until midnight on Friday), from 9 a.m. to midnight on Saturday, and from 9 a.m. to 9 p.m. on Sunday. All routes in the Charm City Circulator network have the same frequency and service span. Figure 3 shows the route map.

The Purple Route began service in May 2010. The implementation schedule was affected by delays in the bus production schedule. The city was focused on "doing it right," and accepted delays rather than compromise by using an interim vehicle. Circulator advocates adamantly supported using a vehicle other than a typical bus. The Purple Route is a north–south route operating primarily via Charles and St. Paul Streets, with 27 stops on its roundtrip between Penn Station (served by Amtrak and MARC commuter rail trains) and Federal Hill south of downtown.

The Green Route, which is not yet in operation as of July 1, 2010, will connect Baltimore's City Hall with the historic Fells Point neighborhood and the John Hopkins East Baltimore campus, primarily via President and Aliceanna Streets and Broadway. The Green Route will make 25 stops.

There is considerable overlap with routes operated by MTA in downtown, but the branding of the circulator buses clearly identifies them as circulators (see Figure 4). In addition, the riders of the circulator appear to be largely new users of public transportation. The city DOT and MTA have a good relationship. MTA is willing to let the city take the lead on the downtown circulator and has taken a supportive attitude. An interesting aspect of the Charm City Circulator is that two free Water Taxi Harbor Connectors connect Fells Point with Tide Point and Canton Waterfront Park, thus extending the effective service area of circulator routes.

The city is working with a marketing firm that is more than willing to undertake attention-getting gambits using new media, including flashmobs, a Twitter phenomenon in which a message is sent out to meet at a certain time at a particular location along the circulator. Media coverage has been almost universally positive. The media has raised questions of how the circulator can escape budget cuts affecting most departments in the city, but is coming to understand the concept of a dedicated funding source.

Previous efforts attempted to serve multiple markets with long headways and circuitous routes. The city is committed to operating 10-min headways to encourage ridership. The DOT has emphasized simplicity and ease of understanding in designing linear routes with small loops at either end. Office workers will be a primary market during the day, visitors will be a primary market during evenings and weekends, and residents will be a market at all times. The circulator is free. All of these elements are part of a deliberate effort to change the culture of transit in downtown Baltimore and nearby neighborhoods.

The Baltimore DOT expected ridership on the Orange Route to grow to 1,200 to 1,300 riders per day. After the first month of operation, daily ridership had risen to 1,600. On opening day of the 2010 baseball season at Camden Yards, the route carried 2,100 riders. Next-bus technology on the vehicles and at stops not only informs waiting passengers of the arrival time of the next bus but enables the DOT to track ridership in real time. Demand is fairly consistent throughout the day, with spikes at lunchtime (11:30 a.m. to 1:30 p.m.) and in the early evening (5:00 to 7:00 p.m.).

The tourist and visitor market has been important for the circulator. The city's new convention center hotel is not on heavily traveled routes; however, ridership at the circulator stop outside the new hotel has been quite good. One marketing technique is to park a circulator bus outside the convention center for the first several hours of each convention, thereby giving attendees a chance to see it and remember it when they find the brochure in their convention packet.

A major constraint cited by the DOT was the use of federal funds. Like many agencies that do not operate transit, the DOT viewed complying with federal rules and regulations as a major effort that inhibited its ability to respond quickly and flexibly as issues arose. As one example, the agency has had difficulty obtaining a clear answer regarding requirements for complementary (fare-free) ADA service. The city relied on local funding sources to begin the circulator, but the DOT recently received news that its application for capital funds for a proposed route to Fort McHenry has been approved.

Benefits and Drawbacks

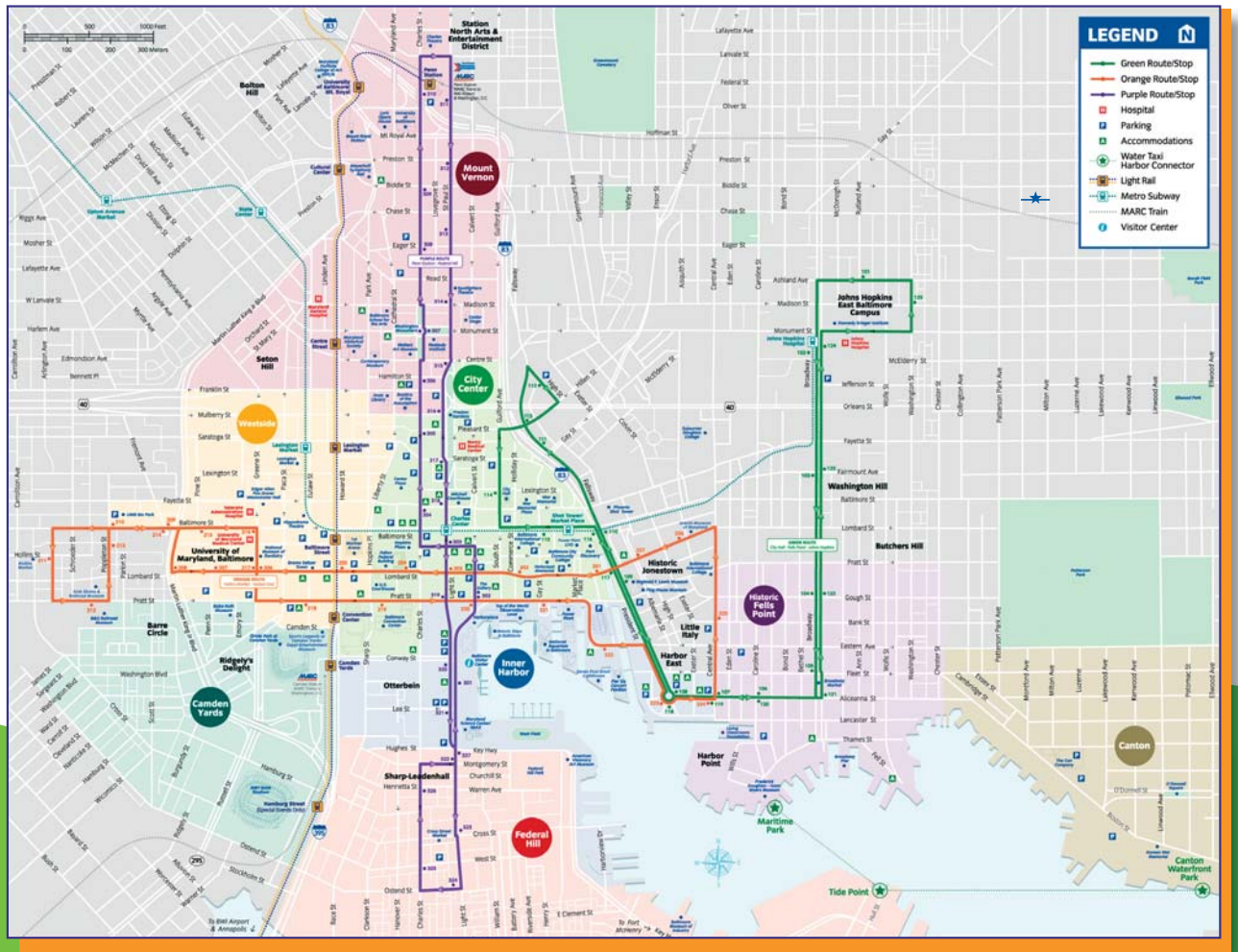
The primary benefits of the Charm City Circulator are a premium, easily recognizable service that appeals to choice riders and a park-once option so that tourists and visitors do not have to drive to multiple destinations in downtown. The primary drawback of the downtown circulator is the cost. Annual operating costs are projected at $5.6 million when all three routes are up and running, or approximately $1.85 million per route.

The changing role of downtown definitely influenced the design and operation of the circulator. Although the traditional CBD continues to thrive, new major activity centers, including two Bio-parks and Harbor East, a 24-h district in an old industrial area, are within a mile of downtown and are served by the circulator.

CHARM CITY CIRCULATOR

STEPHANIE RAWLINGS-BLAKE
MAYOR

MAP AND OPERATING SCHEDULE



Summer Operating Hours (April 1 - Oct 31):

Circulator

Monday-Thursday	6:30am–9:00pm
Friday	6:30am–Midnight
Saturday	9:00am–Midnight
Sunday	9:00am–9:00pm

Water Taxi Harbor Connector

Monday-Friday	7:00am–7:00pm

Winter Operating Hours (Nov 1 - March 31):

Circulator

Monday-Thursday	6:30am–8:00pm
Friday	6:30am–Midnight
Saturday	9:00am–Midnight
Sunday	9:00am–8:00pm

Water Taxi Harbor Connector

Monday-Friday	7:00am–7:00pm

www.CharmCityCirculator.com

Charm City Circulator • 417 E. Fayette Street, Baltimore, MD 21202 • See reverse side for individual route maps and route stops

FIGURE 3 Charm City Circulator route map.

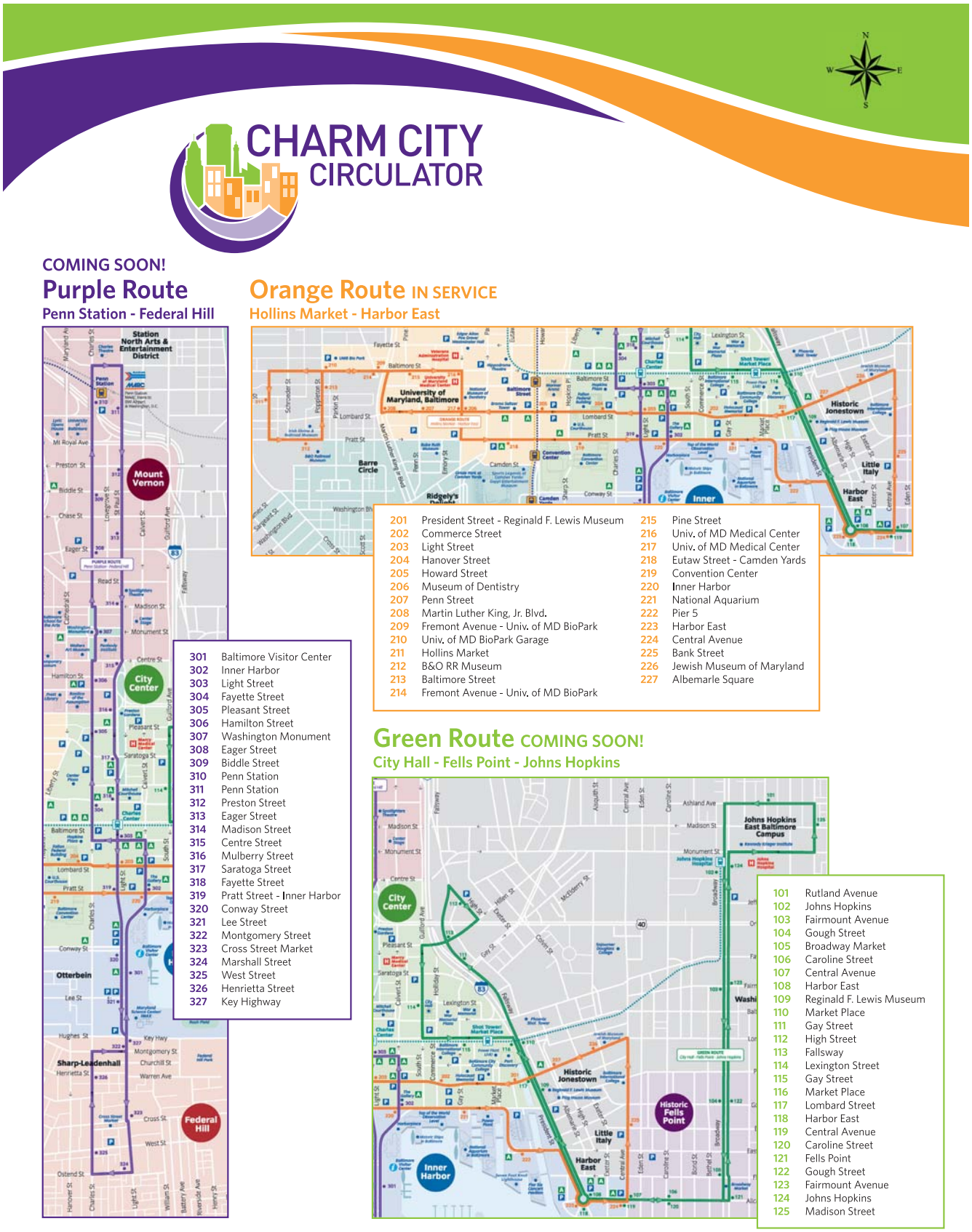


FIGURE 3 (*Continued*)

FIGURE 4 Charm City Circulator bus branding.

Changes and Lessons Learned

If the Baltimore DOT could change one aspect of the planning and implementation it might have been more cautious in announcing the implementation schedule. Three launch dates came and went owing to a delay in vehicle acquisition, which lessened confidence in the city's ability to deliver the service. The agency is convinced that it was worth the wait to get things right at the outset, and the issue of confidence disappeared once service was up and running; however, if they had to do it over again, they would wait until the vehicles were onsite before announcing a launch date.

The Baltimore DOT offers several lessons learned through its implementation and early operation of the Charm City Circulator:

- Do not try to please everyone all of the time. The routing did not please all stakeholders, but the DOT stood by its goal to "keep it simple."
- A stable, reliable funding source is important. A circulator based on voluntary contributions will not work, as shown by previous efforts in Baltimore.
- Set aside a good amount of money for marketing. The DOT dedicated 5% of operating funds to marketing. The circulator service needs to be highly differentiated from other transit services.

The Baltimore DOT's advice to another agency trying to replicate its program is to first identify a reliable and stable funding source. Without it, the circulator will not be sustainable.

Success can be measured quantitatively, based on ridership and productivity. However, certain intangibles also need to be included in the definition of success. In Baltimore's case, the intangibles included added confidence in downtown and the breadth of support from elected officials, downtown interests, and the transit agency.

CTTRANSIT—HARTFORD, CT

CTTRANSIT is the statewide transit operator in Connecticut, including Hartford (the state capital). The service area population of the Hartford Division is 850,000. CTTRANSIT's Hartford Division operates 193 peak buses directly, with an annual ridership of 13.8 million. Approximately 50,000 people work in downtown Hartford.

Circulator Origins and Operation

CTTRANSIT began operating a downtown Hartford circulator in September 2005. The state of Connecticut built a new convention center in Hartford, and the Convention and Visitors Bureau (CVB) was emphatic that there needed to be a downtown shuttle to allow it to compete with other cities for conventions. The stumbling block for two years was funding. In July 2005, Hartford's congressman presided over a meeting of everyone involved and brokered a plan to implement the shuttle.

Funding for the circulator comes out of the Connecticut DOT budget. As the local transit provider, CTTRANSIT had approximately six weeks to design the route, estimate the timing, prepare schedules, and brand the vehicles. The transit agency worked with the convention center management, the CVB, and the Metro Alliance (the greater Hartford Chamber of Commerce) in adapting the Metro Alliance's most recent campaign theme, "Hartford: New England's Rising Star." The downtown circulator was christened the Star Shuttle. Initially, it was viewed as a 90-day demonstration project; however, ridership exceeded expectations and therefore it was extended for one year. By September 2006, the Star Shuttle had established itself as part of the transit network in Hartford.

The market for the circulator is clearly defined as tourists and visitors, and the convention center and downtown hotels are its major champion. The circulator is a one-way loop route 2.5 miles in length connecting the convention center and the hotels, most of which are four to seven blocks away. Figure 5 shows the route, which also serves the Amtrak train station.

Running time is 18 to 20 min, and CTTRANSIT uses two 30-ft buses seating 25 passengers each. Circulator brochures do not include a timetable, but simply state that service operates every 12 min. Service is provided from 7 a.m. to 11 p.m. weekdays and from 3 p.m. to 11 p.m. on Saturday. There is no Sunday service.

The downtown circulator operates a consistent route and headway all day; there are no dotted lines on the map indicating part-time service. This consistency and simplicity of operation is seen as a plus, quickly orienting tourists and visitors to its ease of use.

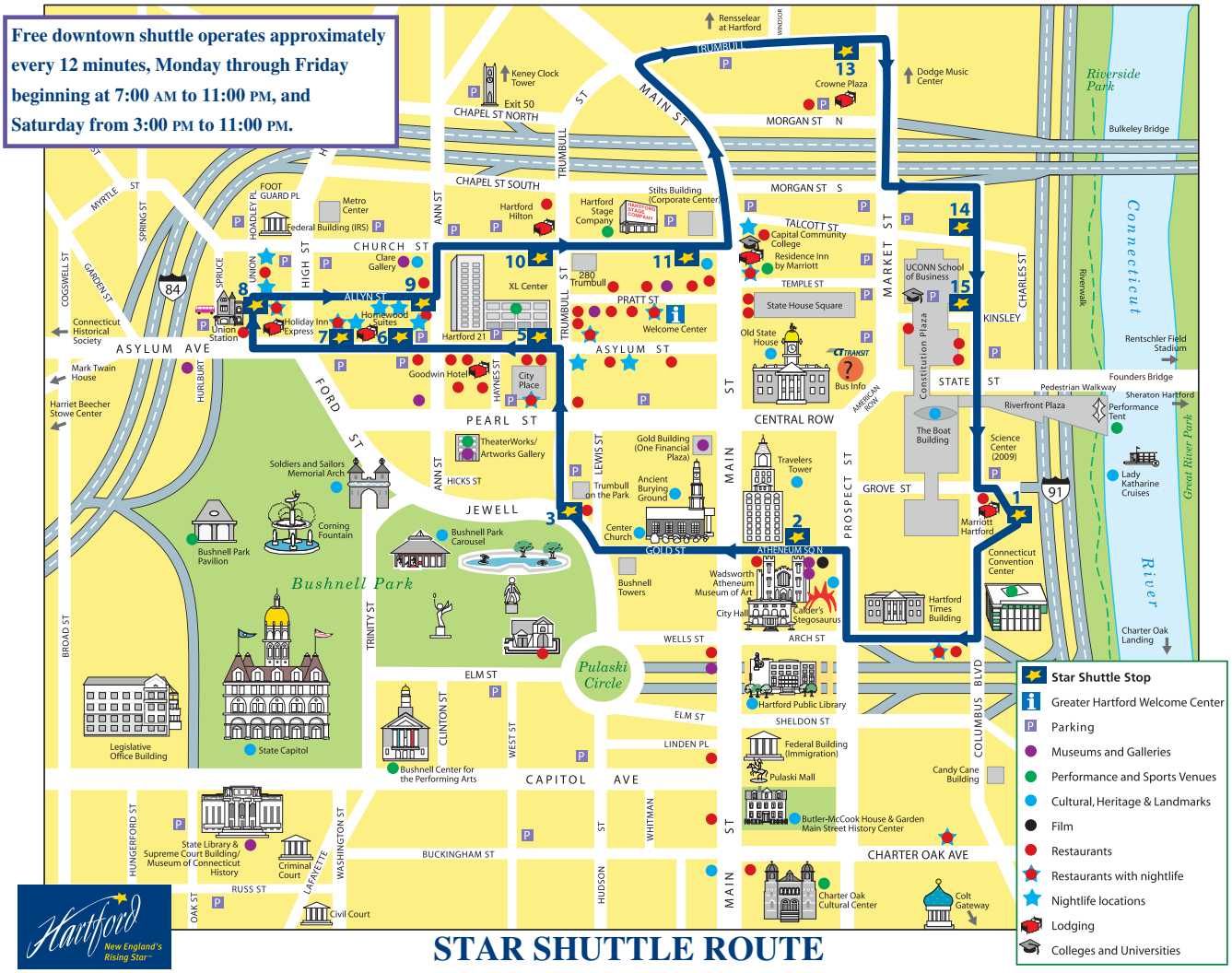


FIGURE 5 Star Shuttle route map.

A lunchtime crowd was also envisioned as a secondary market, but it has not materialized because almost every major office building in downtown has some type of cafeteria. Although downtown restaurants thrive during lunch hour, many employees appear to stay within their buildings for lunch. CTTRANSIT has witnessed the crowds in the building cafeterias during transit fairs at office locations.

Ridership is heavily dependent on convention center activity. When events take place, daily ridership is typically in the 500 to 600 range, and can be as high as 1,500 for a large convention. When the convention center is "dark," daily ridership is between 150 and 200, many of whom are parking at remote garages and lots and taking the circulator to the office.

The Star Shuttle is free. This was more or less a given at the start of the service. The transit agency's estimate is that a nominal fare would bring only about 10% of the $500,000 cost to operate the service, which is not seen as worth the bother of installing fareboxes and counting money. Similarly, ideas about selling targeted advertising to local restaurants and others inside and outside the bus have not been pursued owing to modest revenue forecasts. Instead, signs inside the bus promote Hartford and its downtown in keeping with the tourist destination theme. Figure 6 shows a Star Shuttle bus.

CTTRANSIT is flexible in response to convention needs and will make modifications to the service on a case-by-case basis. The agency will begin service earlier on Saturday and operate on Sunday if there is a big weekend convention. The circulator will operate until midnight or 1:00 a.m. on days when there is extensive evening activity.

CTTRANSIT has a 40-ft hydrogen fuel-cell bus that is used primarily on the downtown circulator route. Even though it is branded somewhat differently, the "green" bus presents a very positive image of the city and the convention center (see Figure 7).

Friendly drivers are an important component of a downtown circulator. There was a clause in the agency's union

FIGURE 6 Star Shuttle bus.

contract that allowed for negotiation of rates and other agreements for nontraditional transit service. CTTRANSIT's general manager indicated that the agency wanted to select outgoing drivers who could serve as ambassadors. The transit union agreed, noting that no one would want just any driver on that route. As it turned out, the senior drivers who bid on the circulator when it started were exactly the type of drivers the agency wanted; a self-selection process appeared to be at work. The CVB helps to train the drivers in how to be customer-focused with tourists, and the drivers enjoy chatting with people visiting Hartford from around the world. Some drivers go above and beyond, putting together visitor packets using various brochures and directing visitors on how to save the $30 taxi fare to the airport by taking local transit. The union has been very cooperative, and many visitors have taken the time to write to the agency commending the drivers.

Several issues have arisen over the years, mostly in response to the Star Shuttle's success:

FIGURE 7 Hydrogen fuel cell bus used on the Star Shuttle route.

- Everyone has a better idea for the route. These usually involve a stop directly outside the person's restaurant or hotel. The main downtown theater and Symphony Hall cannot understand why they are not on the shuttle route, even though a $5 door-to-door taxi trip appears to be the preferred mode for most playgoers and concertgoers. The circulator does serve downtown Hartford's small entertainment district.
- The idea of expanding or extending the route is frequently raised. The increased length of time on the one-way loop and the cost of an extra bus are not clearly understood.
- The state DOT funds all of the service; however, stakeholders are free in their opinions of how DOT might spend its money.

There has been talk of a second route; however, there is no consensus among stakeholders regarding places to serve that are not currently served. A second route would double the cost of service and most likely duplicate at least some of the current route. CTTRANSIT guards the circulator very diligently to avoid dilution of service and to keep the focus on its primary market.

The primary benefits of the Star Shuttle are a free connection between the convention center and downtown hotels, strong ridership during convention events, and providing the CVB with a sales tool to attract conventions to Hartford. The whole process of starting up and operating the downtown circulator has been positive for CTTRANSIT. The transit agency is structured as a private entity to operate transit throughout the state, with all policy directives coming from the state DOT. It has no dealings with the mayor or the city council. CTTRANSIT's involvement with the CVB has made transit more a part of the business community and has created valuable partnerships.

The primary drawback of the downtown circulator is low ridership when the convention center is dark. The circulator is not designed to serve the regular transit customer, because most of the route does not overlap another transit route or stop. However, this has positive aspects of avoiding confusion for both circulator and regular riders.

Given the market for the circulator, any changes to downtown have not affected operation.

If the agency could change one aspect of operation, it might operate fewer hours. A span of service from 7:00 a.m. to 6:00 p.m. on weekdays would meet the overwhelming majority of demand, and service could be added as needed on weekday evenings and weekends. It might appear that it would be more confusing to market the circulator as operating sometimes during evenings and weekends; however, each convention is its own market. There was an expectation that a Saturday night market would develop, taking people from hotels to dinner, but it has not happened.

CTTRANSIT offers several lessons learned through its implementation and operation of the Star Shuttle:

- Define the target market, in this case tourists and visitors to downtown.
- Try to connect as many "dots" as possible that would serve as destinations for the customers, but in a short route that allows for good frequency.
- Provide service every 10 to 15 min, or 20 min at the longest.
- Branding of the service and the buses to stand out from the regular transit fleet is a must, especially if the target market is nontransit users.
- Obtain buy-in from the transit union to allow for a special selection of drivers who can be trained as community ambassadors/visitor guides. This is important for the tourist and visitor market.
- No fare is ideal, or at most a nominal fare.
- It helps to have supportive partners who are willing to lobby for the service.

CTTRANSIT's advice to another agency trying to replicate its program is to keep it simple; a short route that connects the dots, operates frequently and consistently, and is well-branded. Success is measured partly but not entirely on ridership, and the definition of success goes back to the reason for starting the service. The downtown circulator is an important sales tool for the CVB and provides it with an advantage in competing for convention business.

CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION—LOS ANGELES, CA

The city of Los Angeles DOT (LADOT) operates the Downtown DASH network in Los Angeles, along with neighborhood DASH services and commuter express routes throughout the city. LADOT's service area population is 8.6 million. The agency operates 259 buses under contract. Annual ridership on all LADOT services is 30.9 million. Metro, the regional transit agency in Los Angeles, operates an additional 2,085 peak buses directly and another 149 under contract, in addition to 70 heavy rail vehicles and 102 light rail vehicles. Annual ridership on all Metro services is 476 million. Downtown employment exceeds 200,000.

Circulator Origins and Operation

LADOT began operation of the Downtown DASH in 1985. Since that time, the downtown circulator system has grown to six weekday and three weekend routes throughout downtown Los Angeles and neighboring areas, and the DASH concept has expanded to include neighborhood circulators throughout the city. The six weekday routes operate from 5:50 a.m. to 7:00 p.m. Weekday headways vary between 5 and 10 min during peak periods and between 5 and 20 min in midday, depending on the route. Figure 8 shows weekday Downtown DASH Routes A through F.

DASH Routes E and F operate on weekends, along with a Downtown Discovery route (shown as Route DD in Figure 9). The three weekend routes operate every 20 min between the hours of 10 a.m. and 5 p.m. with the exception of DASH Route E on Saturday, which begins service at 6:30 a.m. and operates every 6 min.

The regular fare was originally 25 cents, but was recently increased to 35 cents (its first increase ever) and is scheduled to increase again to 50 cents in July 2011. Downtown DASH monthly passes are available for $9.

LADOT worked with the Los Angeles County Metropolitan Transportation Authority (Metro), the regional transit agency, when designing the original DASH routes and continues to do so when making changes. Many Metro routes either terminate or travel through downtown; however, the agency recognized that its route structure and fare did not attract many riders traveling within downtown.

Employees are the primary market for Downtown DASH; however, shoppers, downtown residents, and tourists are also served, and each route has a slightly different purpose. Route F travels south of downtown, serving the University of Southern California and surrounding residential areas. Route E connects a residential area west of downtown with the Fashion District (known colloquially as the Garment District) and is the most productive of the Downtown DASH routes. Route D connects downtown with Union Station and Gateway Plaza, where many regional rail and bus lines terminate. The weekend Downtown Discovery route is designed for tourists, but is facing possible discontinuation as a result of tight budgets and low ridership.

The primary funding source for Downtown DASH is Prop A, a local sales tax for transit. The three oldest DASH routes also receive federal formula funds through Metro; newer routes are funded entirely through Prop A funds.

LADOT operates 58 Downtown DASH buses in peak service. Annual ridership is approximately 7.5 million per year (25,000 each weekday, 8,000 each Saturday, and 2,700 each Sunday).

Figure 10 shows a DASH bus, which is branded to stand out from buses of the many other transit agencies serving downtown Los Angeles. LADOT uses 30-ft buses, although it has received funding to purchase larger buses for Route E to address capacity problems. Each DASH bus stop is signed with the DASH logo. LADOT has worked with the same marketing firm since the inception of the

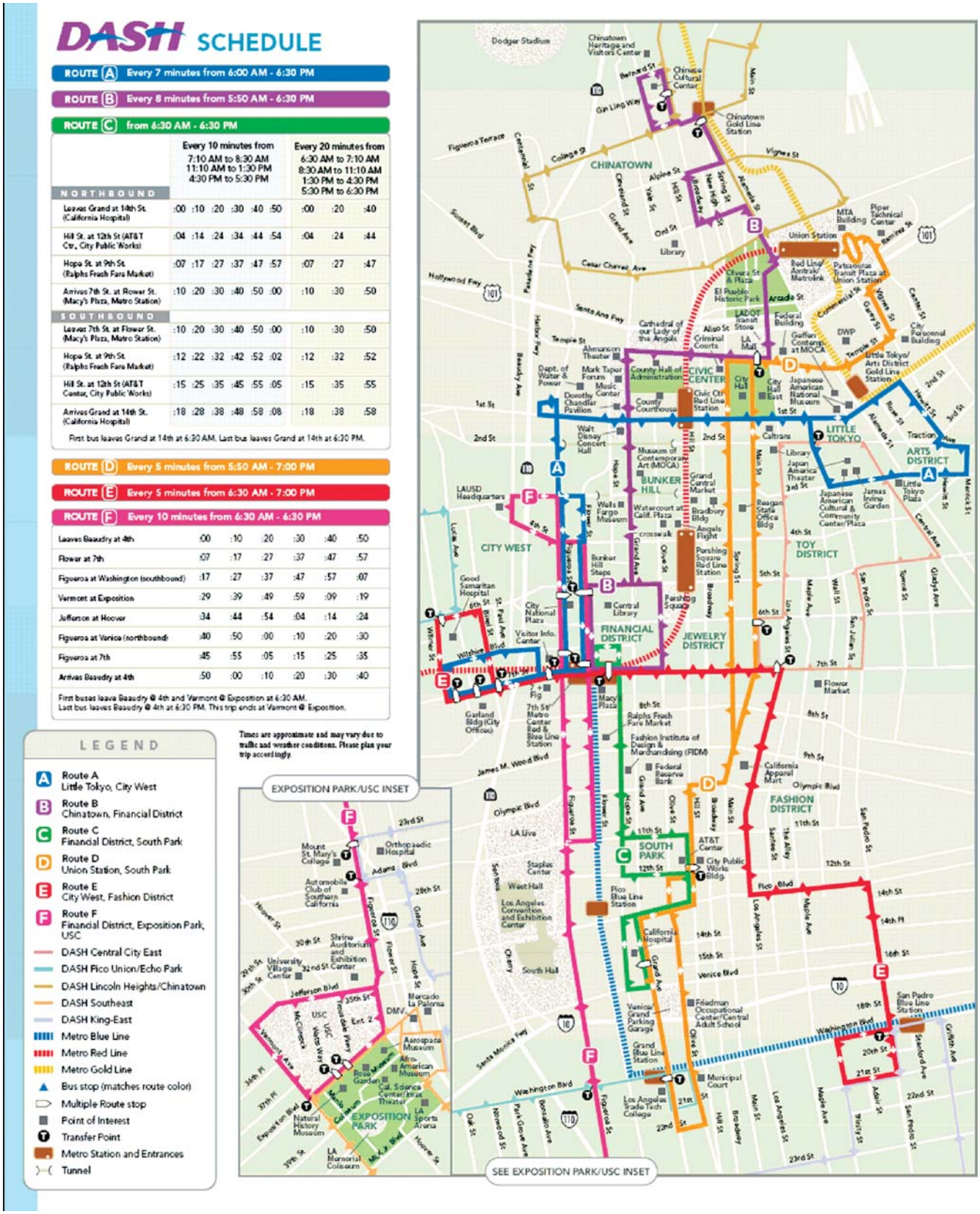


FIGURE 8 Downtown DASH weekday routes.

DASH WEEKEND SCHEDULE

ROUTE E Early service on Saturday only

*Leaves Trinity @ Washington	Los Angeles @ 9th	7th @ Flower (westbound)	*Wilshire @ Witmer	7th @ Flower (eastbound)	7th @ Los Angeles	Arrives Trinity @ Washington
SATURDAY 6:30 AM - 5:00 PM: approximately every 6 minutes						
SUNDAY 10:00 AM - 5:00 PM						
:00	:07	:14	:19	:25	:30	:40
:15	:22	:29	:34	:40	:45	:55
:30	:37	:44	:49	:55	:00	:10
:45	:52	:59	:04	:10	:15	:25

*First buses leave these points at 6:30 am on Saturday and 10:00 am on Sunday. Last buses leave these points at 5:00 pm on Saturday and Sunday.

ROUTE F Every 20 minutes from 10:00 AM - 5:00 PM

*Leaves Beaudry betw. 3rd & 4th	*Flower @ 7th	Figueroa @ Washington	Vermont @ Exposition	Jefferson @ Hoover	Figueroa @ 7th	Arrives Beaudry betw. 3rd & 4th
SATURDAY AND SUNDAY						
:00	:04	:15	:18	:22	:28	:35
:20	:24	:35	:38	:42	:48	:55
:40	:44	:55	:58	:02	:08	:15

* First buses leave these points at 10:00 am, last buses leave these points at 5:00 pm.

ROUTE DD Every 20 minutes from 10:00 AM - 5:00 PM

*Leaves Alameda @ College (Gold Line)	1st @ Los Angeles (Little Tokyo)	*3rd @ Alameda (Little Tokyo)	7th @ Flower (Macy's Plaza)	*7th @ Figueroa (Red/Blue Line)	Broadway @ Alpine (Chinatown)	Arrives Alameda @ College (Gold Line)
SATURDAY AND SUNDAY						
:00	:10	:17	:26	:34	:43	:52
:20	:30	:37	:46	:54	:03	:12
:40	:50	:57	:06	:14	:23	:32

*First buses leave these points at 10:00 am, last buses leave these points at 5:00 pm.

DAYS OF SERVICE

DASH Downtown Los Angeles Weekend operates Saturdays and Sundays. No service on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

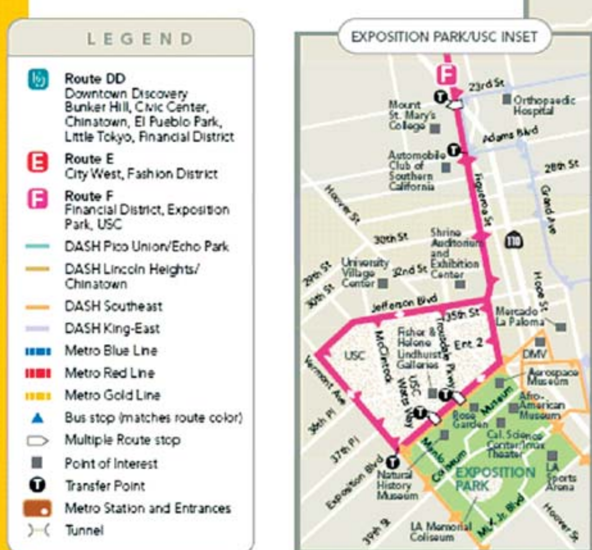


FIGURE 9 Downtown DASH weekend routes.

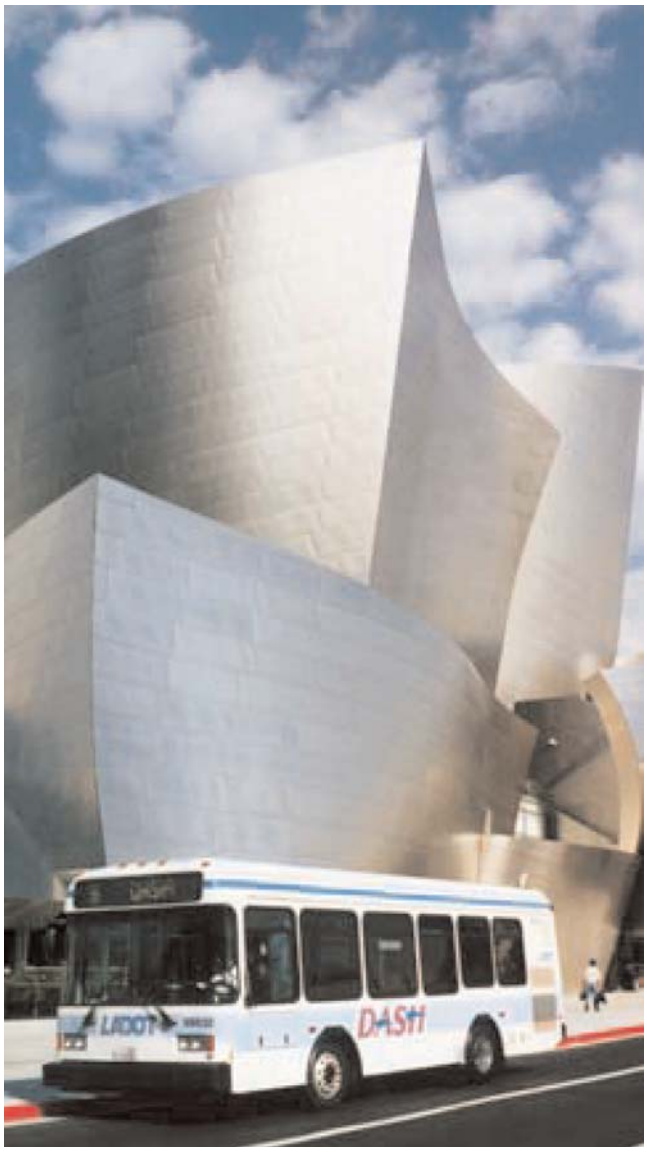


FIGURE 10 Downtown DASH branding.

Downtown DASH to establish a clear identity for its buses and stops.

A private contractor operates the Downtown DASH under contract to LADOT. A primary goal for this service is to be "a step above" other transit services in downtown and LADOT emphasizes the Downtown DASH operator's role as an ambassador. LADOT has received letters of commendation for its drivers from visitors as far away as the East Coast and Canada.

Benefits and Drawbacks

LADOT rates its Downtown DASH as very successful. The chief benefits of Downtown DASH service include encouraging commuters to use regional bus and rail service by providing a means to reach their employment sites in downtown; allowing these commuters and others a means to get around downtown during the day; and providing downtown residents with an alternative to driving their cars for downtown trips.

The primary drawbacks of the Downtown DASH are rising operating costs in times of budget cutbacks and reliable, on-time operation on congested downtown streets with regular service interruptions resulting from building construction, public works projects, filming, and street closures. The congestion causes bunching, especially on the very frequent routes. LADOT recently purchased a system with next-bus capabilities, so that riders can access next-bus information at the stop level through personal digital assistants, computers, or telephones. Dispatchers also see and use this information to track the buses and take corrective action as needed.

The downtown has evolved since the Downtown DASH began, and downtown's residential component has grown significantly. Service entertainment venues (Live LA near the Staples Center is one example) have also flourished. Route A in the Financial District and Route B in Chinatown experience a spike in ridership during lunch hour. LADOT has not been able to respond to all these changes as it would have preferred owing to budget issues, but it has added service to DASH routes in residential and entertainment areas. Ridership soared during a Metro strike, and the regional transit agency has been concentrating more resources on regional service, leaving DASH to serve downtown.

A benefit of being part of city government is the ability to work closely with traffic engineers. There is now signal priority for buses at a key downtown intersection, a bus-only lane along Figueroa Street in the morning peak, and an upcoming signal coordination project will also assist in improving bus travel in downtown.

Changes and Lessons Learned

If LADOT could change one aspect of the Downtown DASH implementation and operation it would have worked in closer collaboration with Metro to ensure that LADOT's role and responsibility as the primary provider of downtown mobility dovetailed with the larger regional perspective. This collaboration is taking place now, but the dialogue and close collaboration would have been useful at the very start.

LADOT offers several lessons learned through its operation of the Downtown DASH:

- Take sufficient time to coordinate with other agencies and municipalities and clarify the role of the downtown circulator system.
- Get feedback from large employers, visitors' bureaus, convention centers, and hotels so that you clearly understand their needs. This allows you to plan effectively for service span, route alignment, and regional connections,

and to avoid duplication and ideally coordinate with private shuttle operators.
- Build in a regular cycle of reviewing downtown circulator service to ensure that you capture changes to the downtown landscape. Changes in travel patterns and migration of employment centers can gradually affect location of demand and running times, but can be identified through periodic reviews.

LADOT's advice to another agency trying to replicate its Downtown DASH is to provide short headways to minimize wait time for the circulator. Identify attractions and be clear on who your market is; make the circulator as easy to use as possible; emphasize service quality, be "a step above" other transit operators through clean buses, knowledgeable operators, and reliable on-time performance; and finally, develop a distinctive brand for the service.

Other factors play an important role, but LADOT views ridership as the best indicator of success, especially given its diverse customer base in downtown Los Angeles. If ridership falls off on a route or in a particular area, it is a sign that something is not right.

TRANSIT AUTHORITY OF RIVER CITY—LOUISVILLE, KY

Transit Authority of River City (TARC) is the transit operator in Louisville, Kentucky, and the surrounding area. The service area population is 755,000. TARC operates 198 peak buses directly and another 7 under contract. Annual ridership on all services is 15.6 million.

The history of trolleys in Louisville goes back to the 19th century. Fontaine Fox, the man who created the "Toonerville Trolley" comic strip, based it on the old Brook Street Line that served a Louisville neighborhood known then as Toonerville. The steel-wheel trolleys made their last trip on May 1, 1948. Almost 40 years later, the city of Louisville designed a revitalization plan that included a pedestrian mall for 4th Street, a retail street in downtown Louisville with several theaters. TARC obtained federal funds to purchase Chance rubber-tired trolleys to operate along 4th Street. Free trolley service began in late 1987.

Amid budget woes in 1994, TARC was planning to institute a 10 cent fare on the 4th Street trolley and cut back service levels. A leading banker in Louisville assembled a downtown coalition that agreed to provide funds to keep the trolley operating free for five years.

TARC operated a downtown circulator bus route along Main and Market Streets, an east–west, one-way pair. When the Louisville Slugger Museum opened in 1996, TARC replaced the buses with trolleys on this route. This turned out to be a public relations coup, because all the hoopla surrounding the museum opening included the new trolley route. It is not often that a transit general manager gets to share a stage with several Hall of Fame baseball stars. Figure 11 shows the two trolley routes that continue to operate today. The 4th Street Trolley operates every 7 to 10 min between 8 a.m. and 7 p.m. weekdays and every 20 min between 10 a.m. and 6 p.m. on Saturday. The Main/Market Street Trolley operates every 10 min between 6 a.m. and 8 p.m. on weekdays and every 15 min between 10 a.m. and 6 p.m. on Saturday. Weekday ridership is approximately 1,000 each day.

The next evolution of the trolley occurred in 2001 when a group of artists and art gallery owners along Main and Market Streets proposed the First Friday Trolley Hop. Many of the galleries were scheduling art openings and events on the first Friday of each month, and it seemed natural to use the trolleys as transportation and as a great marketing tool. Restaurant owners joined in, and together they provided funding for TARC to operate the trolley from 5 p.m. to 11 p.m. on first Fridays. This became a phenomenal success, thus encouraging more shops and galleries to stay open late. Free parking is available along the route, and ridership exceeds 3,000 in good weather. The galleries benefit by being connected to each other by means of a free, attractive, fun mode of transportation, and TARC benefits by its association with a combined cultural event and very big block party.

The success of the First Friday Trolley Hop inspired a similar service along the historic Frankfort Avenue corridor. On the last Friday of each month, galleries and businesses in the corridor sponsor the F. A. T. Friday Trolley Hop. Figure 12 displays the route.

In a city the size of Louisville, transit can become part of the fabric of the community. TARC's willingness to experiment with unconventional ideas served as a means to

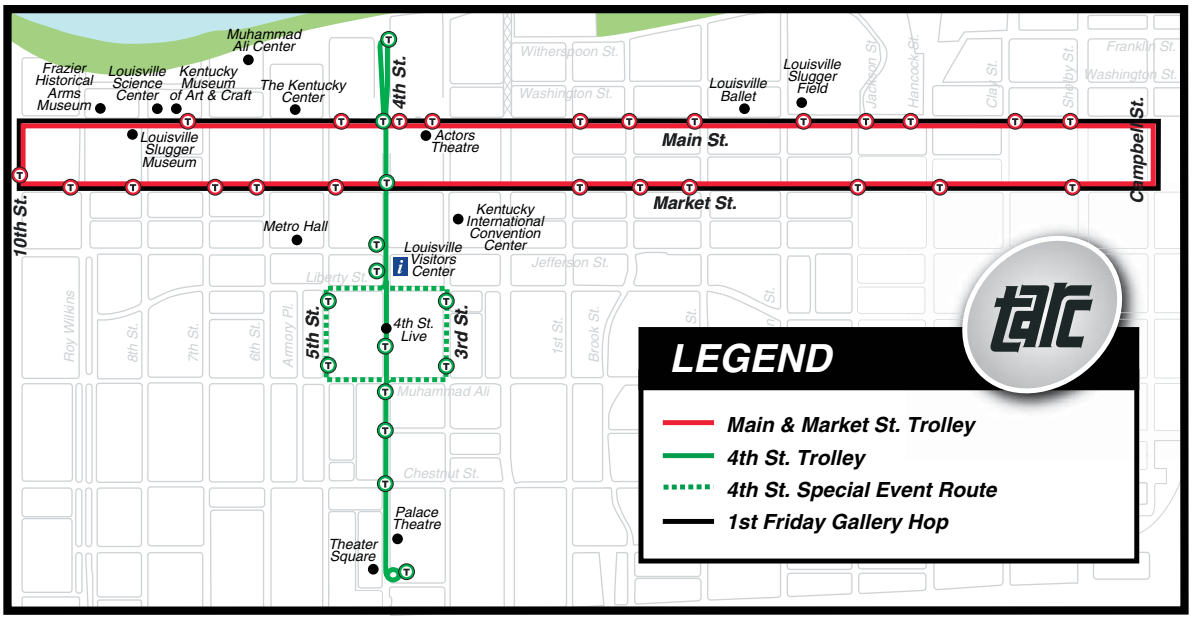


FIGURE 11 Downtown Louisville trolley routes.

do this. Interestingly, a private coach operator filed a complaint stating that the trolleys were charter service and should be put out to bid. The FTA ruled that the trolleys were regularly scheduled service and could continue to be operated by TARC.

Fare policies have evolved over time. Originally free and remaining free through the efforts of local businesses, the trolleys instituted a 25 cent fare in 2004. Social service agencies ministering to the homeless were located at either end of the Main/Market Street trolley, and a nominal fare was seen by many as a way to define the market for the trolley. The fare was raised to 50 cents in 2007.

As with transit agencies around the country, TARC has faced major budget shortfalls and in the spring of 2010 announced a 10% to 15% cut in service. TARC's proposal eliminated the 4th Street trolley and cut back the Main/Market Street trolley to peak hours only, essentially serving as a parking shuttle. As a result, Louisville's mayor was concerned. After more than 20 years of operation, the trolleys had become a symbol of downtown's vibrancy and activity and were

FIGURE 12 Frankfort Area trolley route.

prominently featured in videos and brochures promoting the city. The Convention and Visitors Bureau noted that the trolleys were an important selling point for visitors, even if they did not use them.

The mayor's staff convened a meeting of business and community leaders to explore options regarding the trolleys. TARC explained to the group that the 50-cent fare and lessened frequency of service were stumbling blocks to trolley use; no fares and good frequency were necessary for success.

At the next meeting, TARC proposed no fares, 7 to 10 min headways along 4th Street, 10 min headways all day along Main and Market Streets, a marketing campaign, and a survey of riders. TARC gave the group a price tag of $102,000 for the summer, and the Downtown Development Corporation agreed to fund summer operations, with the understanding that the group would reconvene after the summer to decide on a future direction.

Benefits and Drawbacks

A primary benefit of the Louisville trolleys was increased exposure to transit for community members that might not normally ride the bus. This exposure does not always benefit TARC, because some residents do not believe that the trolleys are part of the agency.

The primary drawback of the trolleys is that they are slow; a result of downtown congestion. This is particularly true along Main and Market Streets; however, 4th Street has been opened to traffic and is no longer a pedestrian mall. The decision to charge a fare discouraged ridership, but the trolleys were once again free in the summer of 2010.

Changes and Lessons Learned

If TARC could change one aspect of trolley operation it would implement a dedicated lane or signal priority for the trolleys to speed operation.

TARC offers several lessons learned through its operation of the downtown trolleys:

- Trolleys provide greater exposure to transit for community members who do not ride the bus. Residents who may not be aware of the bus network notice the trolleys downtown.
- Appearances matter. People like the trolleys, whether they ride them or not.
- Trolleys provide positive images congruent with the vision of civic leaders for their city and especially their downtown. The symbology of the trolleys builds support for transit among key stakeholders.
- Frequent service is necessary to attract riders. Current headways range from 7 to 10 min throughout the day.
- An understanding of typical walking distances and attitudes toward walking is needed to gauge whether a downtown circulator will work. If residents and downtown employees are averse to walking, so much the better, as long as frequency is good.
- The special Friday night trolleys are worth their weight in gold. These services associate the trolleys and TARC with the vibrancy of the community and thus change how transit is viewed.

TARC's advice to another agency trying to replicate its downtown circulator is to be clear with decision makers and stakeholders about what you are getting into—objectives, expectations, costs, and the role of the trolley. It is imperative to have the downtown business community and activity groups on board as part of the experiment, not as after-the-fact observers. The downtown circulator needs champions, within both the transit agency and civic groups. In Louisville, the trolley aided in the revitalization of downtown, although it is important to note that the trolley would not have achieved this by itself. The role of the trolley in downtown revitalization was not as the leader, but as a lever that made other things possible.

Success is measured partly but not entirely on ridership; community acceptance and support is a big part of the equation. One downtown business leader noted that the image conveyed by the trolley would be useful even if it was empty. Measuring success involves the answer to the question: why are we doing this? If the vibrancy and attractiveness of downtown is the answer, then develop metrics such as how many people come downtown. The trolley is part of the attraction, but lots of people and organizations can share credit for downtown's vitality.

CENTER CITY DISTRICT—PHILADELPHIA, PA

Center City District is a Business Improvement District in Center City Philadelphia, whose mission is to enhance the vitality of Center City Philadelphia as a thriving 24-h downtown and a great place to live, work, and have fun. The Central Philadelphia TMA, affiliated with the Center City District, works to make travel within Center City efficient, reliable, pleasant, and safe. The TMA manages the downtown circulator, known as the Phlash. The regional transit agency in Philadelphia is the Southeastern Pennsylvania Transportation Authority (SEPTA), which operates 1,152 peak buses directly, along with 278 heavy rail vehicles, 127 light rail vehicles, 20 trolleybuses, and 315 commuter rail vehicles. SEPTA serves an area of 3.3 million and has an annual ridership of 341 million. Downtown employment is more than 200,000.

Circulator Origins and Operation

The downtown circulator (the Phlash) in Center City Philadelphia was the brainchild of then-Mayor Edward Rendell in the 1990s, a time when a new convention center and several new downtown hotels were opening. The mayor had witnessed something similar in Phoenix and thought that the concept would work in Philadelphia. SEPTA initially operated the downtown circulator under contract with the city. When the city (under a new mayor) could no longer afford to operate it, the TMA assumed the role of operator with the help of grants from the state. Mayor (later Governor) Rendell has been the lead champion of Phlash service. The TMA has been the steward and operator of the Phlash. A contractor provides day-to-day operation.

The market for the Phlash is clearly defined as tourists and visitors. Its main purposes are to support a "park once" concept for day visitors and to serve the convention center and hotels. Employees, shoppers, and downtown residents also use the Phlash. The Phlash operates along Market Street and Benjamin Franklin Parkway between Penn's Landing and the Philadelphia Museum of Art, and then extends west to the Centennial District with stops at the zoo and children's museum. Figure 13 shows a streamlined route between tourist attractions that also serves a major business corridor. There are 27 Phlash stops.

The original route was circuitous and confusing and took in residential, retail, employment, and tourist spots. As a result of trying to please all markets, it was excessively long. When the TMA assumed operation, it focused on the tourist and visitor market and designed a simple, shorter loop, from the Delaware River waterfront to the Art Museum, passing the convention center and several hotels. Aside from minor changes, that route continues today. In 2009, the Philadelphia Zoo and the children's museum, located west of the Art Museum, asked to participate, and the route was extended to its present configuration.

SEPTA contributed funding to brand a new vehicle that was required for the extension to maintain the headway. The TMA also reached an agreement with the zoo and the children's museum along the route extension that they would make up any funding shortfall as a result of the extension. Ridership skyrocketed, so the agreement was not needed.

The Phlash operates every 12 min between 10 a.m. and 6 p.m., 7 days a week, between May 1 and October 31. Chance Historic Streetcars are the vehicles used on the Phlash, and these are branded with a distinctive color scheme, shown in Figure 14. The contractor purchases and maintains the vehicles.

Ridership is heaviest on the weekends, reflecting the Phlash's tourist orientation. Saturday averages almost 2,000 riders, Sunday ridership is more than 1,600, and weekday ridership is slightly under 1,400. Senior citizens can ride free, and account for 23% of Phlash ridership.

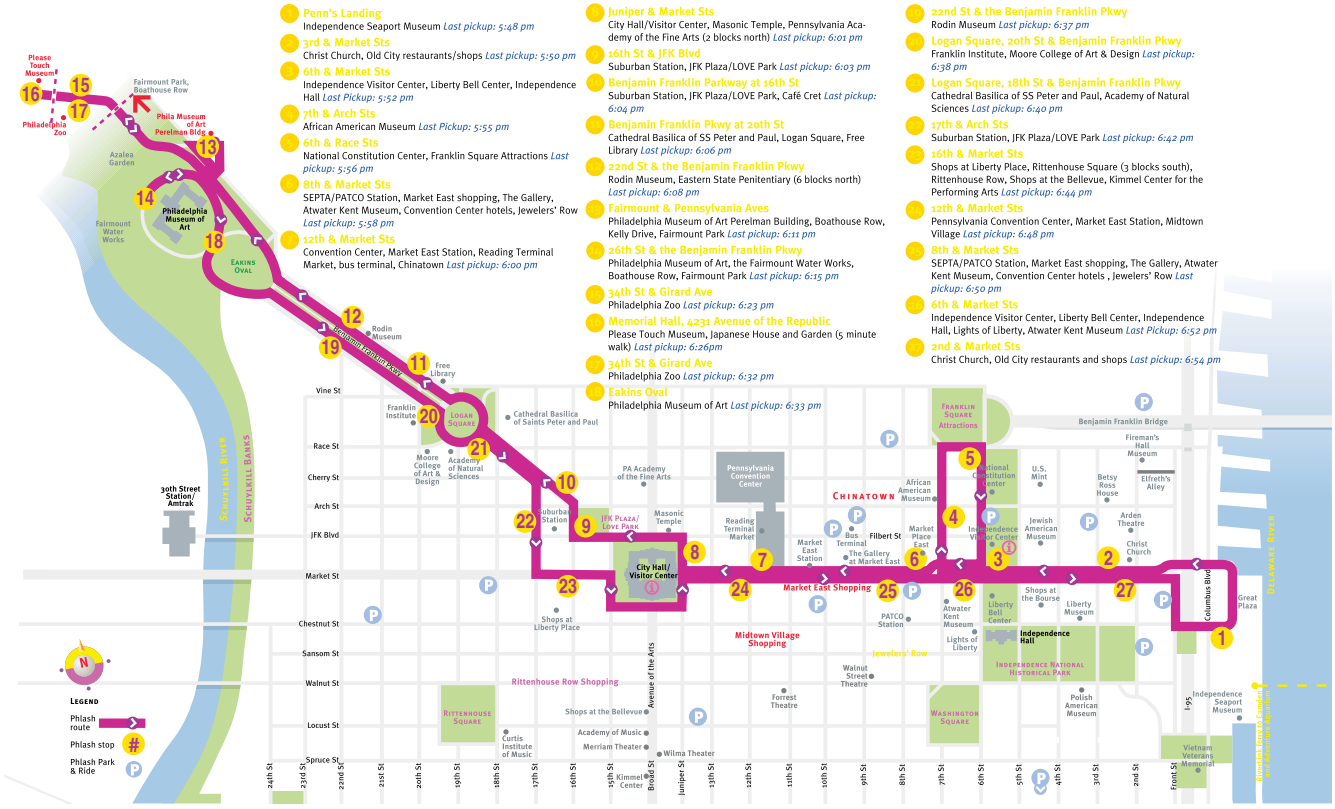


FIGURE 13 Phlash route map.

FIGURE 14 Phlash vehicle.

The Phlash charges a fare of $2.00. An all-day PhlashPass is available for $5.00 and an all-day Family PhlashPass costs $10.00. Seniors and children under five always ride free. In 2009, the Phlash began accepting SEPTA passes. There are several stops where passengers can transfer to a SEPTA bus. Also, the Phlash stops at downtown's two multi-modal transit stations with access to regional rail, subway, and trolley lines.

The TMA markets the Phlash extensively in various ways. It prints thousands of brochures and provides them to museums, hotels, and the convention center. A Phlash video is shown in hotel rooms, at the convention center, and on the vehicles themselves (see the video at http://www.centercityphila.org/about/CPTMA.php). There are advertisements in *WHERE* magazine (distributed in hotels and elsewhere), website promotions, and special "Phlash Day" events throughout the season, occasional press releases, and a Park 'n Ride discount at various parking facilities. State grants of approximately $850,000 per year support the marketing efforts.

Governor Rendell appointed an advisory group when the TMA assumed responsibility for the Phlash. After the first year of TMA operation, the group was convinced that the TMA could run the circulator. Members of the advisory group are now members of the TMA Transportation Committee.

The TMA has occasionally received requests for weekend-only service or a shortened route serving the cultural institutions along the Benjamin Franklin Parkway and the zoo, but without additional financial support from these destinations, operating the Phlash between November and April is cost-prohibitive.

Funding and the inability to identify a long-term funding source are the major constraints. There is concern regarding continuation of the state grants supporting the Phlash when Governor Rendell leaves office at the end of 2010. The TMA and SEPTA have discussed the possibility of the transit agency assuming responsibility, but no decision had been reached at the time of this review.

The primary benefit of the Phlash is that it provides a low-cost, easy link aimed primarily at visitors, between downtown Philadelphia's historic destinations and the city's cultural attractions, a distance of approximately 2 miles. The addition of a "leg" from the cultural attractions to the zoo and children's museum west of the downtown area has resulted in ridership increases.

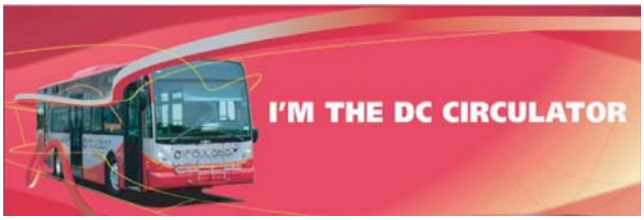
The primary drawback of the downtown circulator is funding, with a significant subsidy needed from the state. Other drawbacks include its seasonal nature, with no service from November through April, and the difficulty meeting headways consistently owing to downtown traffic.

Changes in downtown have not affected operation significantly. The TMA has adjusted Phlash stops to incorporate new destinations and extended the route, as noted earlier.

The TMA would not change any aspect of the Phlash's design and implementation. Funding is the major issue. The TMA offers a single lesson learned through its implementation and operation of the Phlash; a subsidy is required for operation, because the circulator does not make money.

The Central Philadelphia TMA's advice to another agency trying to replicate its program is to identify a funding source to subsidize operation of the downtown circulator. Success is measured by ridership and also by the number of satisfied riders. The TMA always has survey cards available on the streetcars and asks drivers to encourage passengers to fill them out and return them. The contractor continuously trains drivers on various aspects of customer service. Rider satisfaction is the TMA's most important goal; making visitors to Philadelphia feel welcome and putting them at ease on how to get around to all the major attractions.

DISTRICT DEPARTMENT OF TRANSPORTATION—WASHINGTON, DC



The District DOT (DDOT) funds and oversees the DC Circulator network in Washington, D.C. The District of Columbia pays Metro (Washington Metropolitan Area Transit Authority) a management fee to manage the DC Circulator service, and Metro contracts out the actual 45-bus operation to a private contractor. Metro is the regional transit agency in the Washington D.C. area. It operates 1,261 peak buses directly and another 24 under contract, along with 830 heavy rail vehicles in a service area with a population of 1.3 million. Annual ridership on all Metro services is 425 million.

Circulator Origins and Operation

The DC Circulator began with the District of Columbia's desire to provide better connections in downtown. The concept had been studied for years, and the Downtown Business Improvement District was interested. The National Capital Planning Commission was another early proponent of a downtown circulator. DDOT worked with Metro to identify potential funding sources, and the DC Circulator began operation in 2005.

The first routes focused on the core of downtown, Union Station, and Georgetown. In 2009, the DC Circulator system expanded to serve neighborhoods that are more residential in character. Today's circulator includes five color-coded routes, shown in Figure 15.

- The Orange Route (Georgetown to Union Station) operates every day between 7 a.m. and 9 p.m., with late night service between Georgetown and downtown until midnight Sunday through Thursday and 2 a.m. Friday and Saturday.
- The Green Route serves Woodley Park, Adams–Morgan, and the McPherson Square Metro station. This route operates every day between 7 a.m. and midnight, with late-night service until 3:30 a.m. on Friday and Saturday nights.

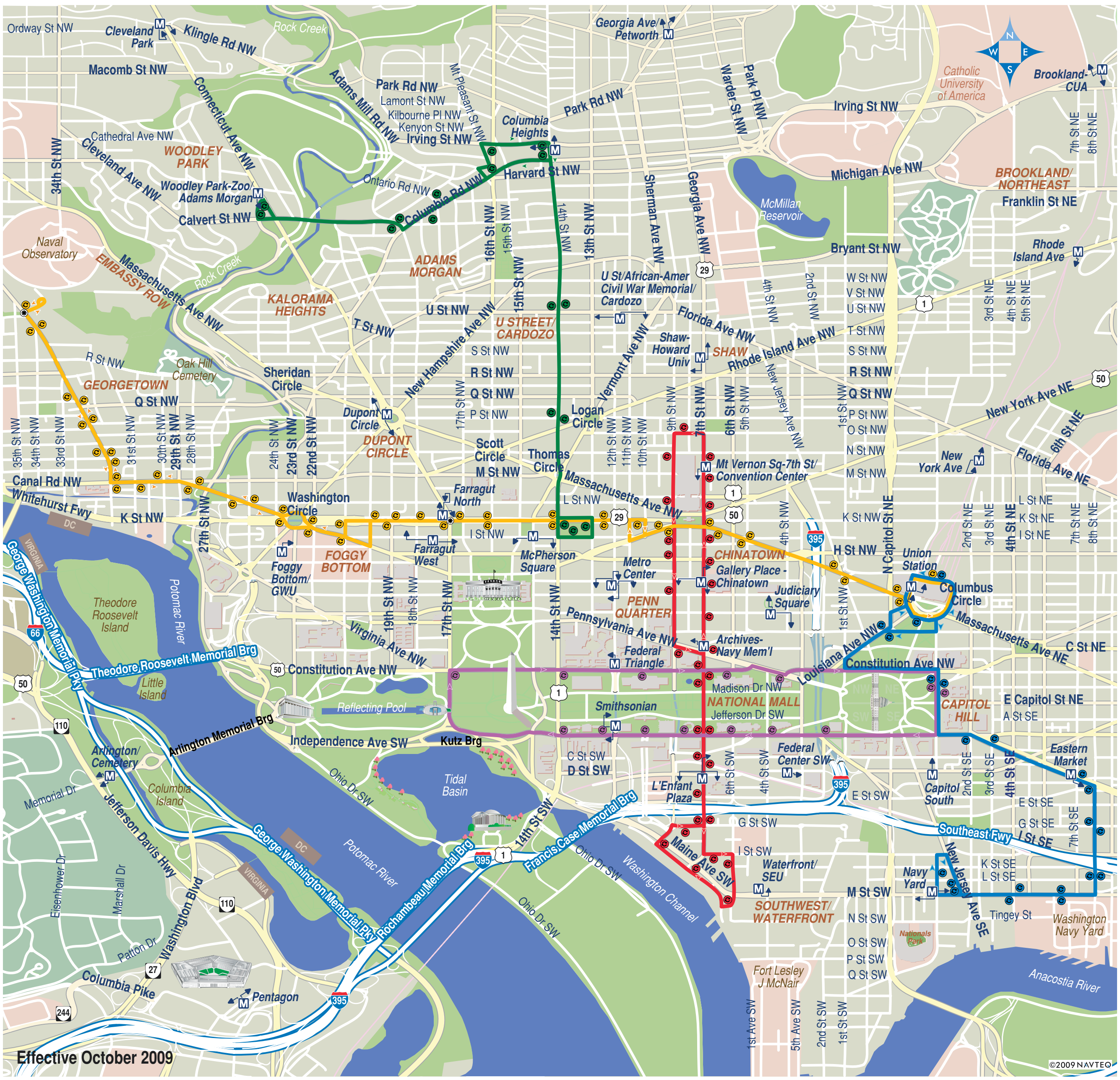


FIGURE 15 DC Circulator map.

- The Purple Route (Smithsonian to the National Gallery of Art loop) operates on weekends between 10 a.m. and 6 p.m.
- The Red Route (Convention Center to the Southwest Waterfront) operates every day between 6 a.m. and 7 p.m.
- The Blue Route (Union Station to the Navy Yard via Capitol Hill) operates weekdays between 6 a.m. and 7 p.m. Additional service is provided for Washington Nationals evening and weekend home games at Nationals Park.

The primary market for the DC Circulator is downtown employees. As the circulator system has expanded the markets served have also changed. Employees are the predominant market during peak commute hours and during lunch, but the focus shifts to entertainment at night. The DC Circulator's main purposes are to encourage public transit use by employees, improve general mobility through downtown, provide a connection between Union Station and the downtown core, provide a way for visitors and tourists to get around, and serve residential areas in or near downtown.

Each DC Circulator route operates every 10 min. Specially purchased Van Hool buses are used on Circulator routes. The original 29 buses are 40 ft in length, and the newer 14 vehicles are 30-ft buses that are easier to maneuver through residential neighborhoods. The buses are branded, as shown in Figure 16. The city purchases the vehicles and the contractor maintains them.

DDOT opted for the Van Hool buses because their distinctive, modern appearance helps them to stand out in downtown. Feedback from riders has been very positive.

The DC Circulator routes were designed to connect specific destinations and thus have fewer stops than a typical transit route. This improves the speed of the service, and leaves the impression among riders that you can get anywhere within 10 min.

FIGURE 16 DC Circulator vehicle.

Ridership is heaviest on weekdays, with more than 13,500 riders on a typical weekday. Saturday ridership averages almost 9,000 and Sunday ridership is 6,500.

The DC Circulator has gathered information on the age and trip purpose of its riders, with the majority of riders between the ages of 25 and 49. Customers use the DC Circulator for multiple purposes, with recreation, shopping and dining, and work commute ranking highest among trip purposes

The DC Circulator charges a fare of $1.00, less than the cash fare on Metro. DC Circulator passes and transfers are available, and the circulator also accepts Metro transfers, monthly passes, and SmarTrip cards. Several stops offer transfer connections to Metro.

DDOT recognized early on that transit agencies are not marketing experts and has relied on the marketing expertise of its business community partners. Marketing efforts include use of the website, cross-promotion with area business improvement districts, where the buses have advertisements featuring local businesses, brochures, and partnerships with hotels and conventions.

The 2009 expansion of service has created new stakeholders. The original routes were concentrated in two of the city's wards, but current routes serve four wards. The city funds all costs of the DC Circulator and funding is subject to annual appropriation; therefore, a broader base of support is promising in terms of funding stability. DDOT and the city have been aggressive in searching out unused capital funds for use on the circulator. Even so, funding is the major constraint.

DDOT sees several benefits accruing as a result of the DC Circulator. Public perception toward transit has improved greatly owing to frequent service, strong branding, great customer service, and easy-to-understand routes. Linkages to downtown destinations have improved; it is much easier to travel between some of the most important activity centers without having to transfer. Cross promotions with business improvement districts has created a positive linkage between local businesses and transit serving those businesses. Business improvement district members are enthusiastic supporters of the DC Circulator.

The primary drawback of the DC Circulator is that it is a victim of its own success in terms of its popularity leading to requests for circulators in neighborhoods all over the city, whether or not the demand is sufficient to justify service.

The changing role of downtown has definitely affected the design of the DC Circulator routes. The circulator's primary market continues to be employees in downtown, but it has attracted a broader market that includes tourists, visitors, and residents. Each route has developed its own character, depending on the neighborhoods and areas it serves.

The one aspect of the DC Circulator's design and implementation that DDOT would change is that it would have

developed more specific criteria on performance levels and governance from the very beginning. The sometimes ad hoc decision making has led to difficulty as the Circulator has matured. There is no objective standard by which to judge the requests that come from all areas of the city. DDOT is vigilant about not diluting the circulator brand by extending new routes to areas that do not warrant service. Specific criteria would be of great use in this effort, and the usefulness of setting performance criteria and governance structures at the outset is one of the lessons learned.

A principal lesson learned was the importance of building a strong brand with support from the business community. Possibly the most innovative part of the process of designing the circulator was to set up a separate nonprofit corporation with the business improvement districts and the Convention and Tourism Bureau to use the marketing expertise of the private sector in branding the service.

Another important lesson is the need for frequent service. DDOT operates every 10 min for the entire span of service to make the DC Circulator simple to understand for those not familiar with consulting timetables for transit routes. The 10-min headway gets people talking about the service and draws choice riders who would not otherwise choose transit. DDOT is committed to protecting this headway at all costs, preferring to cut the span of service or route length to preserve frequent service.

A final lesson learned is the use of unique, distinctive, high-quality buses painted to stand out visually. The buses used on the DC Circulator are not commonly seen in the United States and are very positively received by the riders.

DDOT's advice to another agency trying to replicate its program is to emphasize frequent service. Choice riders will not view a circulator as a reliable mode if they have to think about when the next one arrives. Also, turn the marketing and branding components over to experts in the field.

Success is measured by ridership, which had been growing at an annual rate of 16% even before new routes were added. Success is also measured by riders' preference for the circulator over other modes, and by the ability to attract choice riders. DDOT attributes this to direct service connecting major activity centers, an attractive price, the limited number of stops, and distinctive, comfortable buses.

CAPITAL METRO—AUSTIN, TX

Capital Metro is the transit operator in Austin, Texas (the state capital), and the surrounding area. The service area population is 1.2 million. Capital Metro operates 225 peak buses directly and another 122 under contract. Annual ridership on all services operated is 37.4 million.

Circulator Origins and Operation

This is the only case study of a downtown circulator that is not presently operating. The 'Dillo, Austin's downtown circulator, began operation during the 1970s as a parking intercept/circulator service and went through several transformations as an iconic part of downtown before being discontinued in 2009 owing to budget issues. The old 'Dillo logo is shown here, and Figure 17 provides examples of 'Dillo branding. From the beginning through 2007 the 'Dillo was free; Capital Metro paid for the entire cost of operation.

The Downtown Austin Alliance and the State Legislature (Austin is the capital of Texas) were key supporters of the 'Dillo at its inception and in its early years. In the 1980s, the 'Dillo took on the character of a legislative shuttle, connecting the Capitol with other downtown locations. At its peak, the 'Dillo carried 5,800 riders per day. Through the efforts of a downtown task force, the 'Dillo morphed again in the late 1990s into a series of five daytime and two late-night routes circulating through downtown. The daytime routes, named according to their colors, are shown in Figure 18.

The five 'Dillo routes were designed to maximize coverage and operated at different headways. Only the Silver 'Dillo was a linear route, operating on the one-way pair along 5th and 6th Streets. 'Dillo riders appeared reluctant to get on a loop or circuitous route, perhaps not being sure they could find their way back. Capitol Metro received constant requests to extend the 'Dillo routes beyond downtown into the nearby neighborhoods. Branding, the use of rubber-tired trolley replica vehicles, and no fares all set the 'Dillo apart from regular transit routes; however, in functional terms the separation between regular and 'Dillo routes was decreasing.

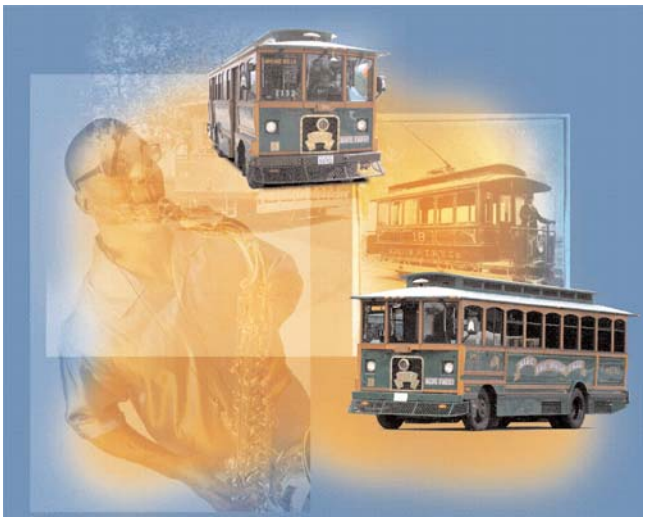


FIGURE 17 Examples of 'Dillo branding.

FIGURE 18 Former 'Dillo routes (late 1990s).

As noted earlier, the 'Dillo's purpose had evolved through the years, and the five routes served different markets. The Red and Gold 'Dillos served the community college and county facilities on the west side. Students and young hipsters were the primary market on the Orange 'Dillo, along with some Capitol workers. The state employee market changed after the terrorist attacks of September 11, 2001, when the 'Dillo was rerouted to serve the periphery instead of operating within the Capitol grounds. The Blue 'Dillo was a true circulator through downtown, and the Silver 'Dillo served a transit-dependent neighborhood on the east side and a high school on the west side.

In 2007, Capital Metro reconvened the stakeholder 'Dillo task force in response to changes in the market for 'Dillo routes noted earlier. The task force worked for more than 6 months to refashion the 'Dillo. The task force based its recommendations on two principal concepts:

- Shorter, more frequent, and linear routes; an emphasis on frequency as opposed to coverage; and
- Downtown only; neighborhoods to be served by regular fixed routes.

Figure 19 presents the two 'Dillo routes that resulted from the task force recommendations. The streamlining was intended to provide frequent service in the most important corridors in downtown. The north–south route serves Congress Street, looping around the State Capitol on its northern end. The east–west route serves the one-way pair along 5th and 6th Streets, but is shortened to stay within downtown.

The headway on both routes was improved to between 5 and 10 min (depending on the time of day), although traffic congestion made it impossible to operate 5-min headways reliably. The possibility of adding another north–south route was left open.

A final change in 2007 introduced a 50-cent fare. Before 2007, the 'Dillo had been free. At this time, a $5 monthly pass was also introduced.

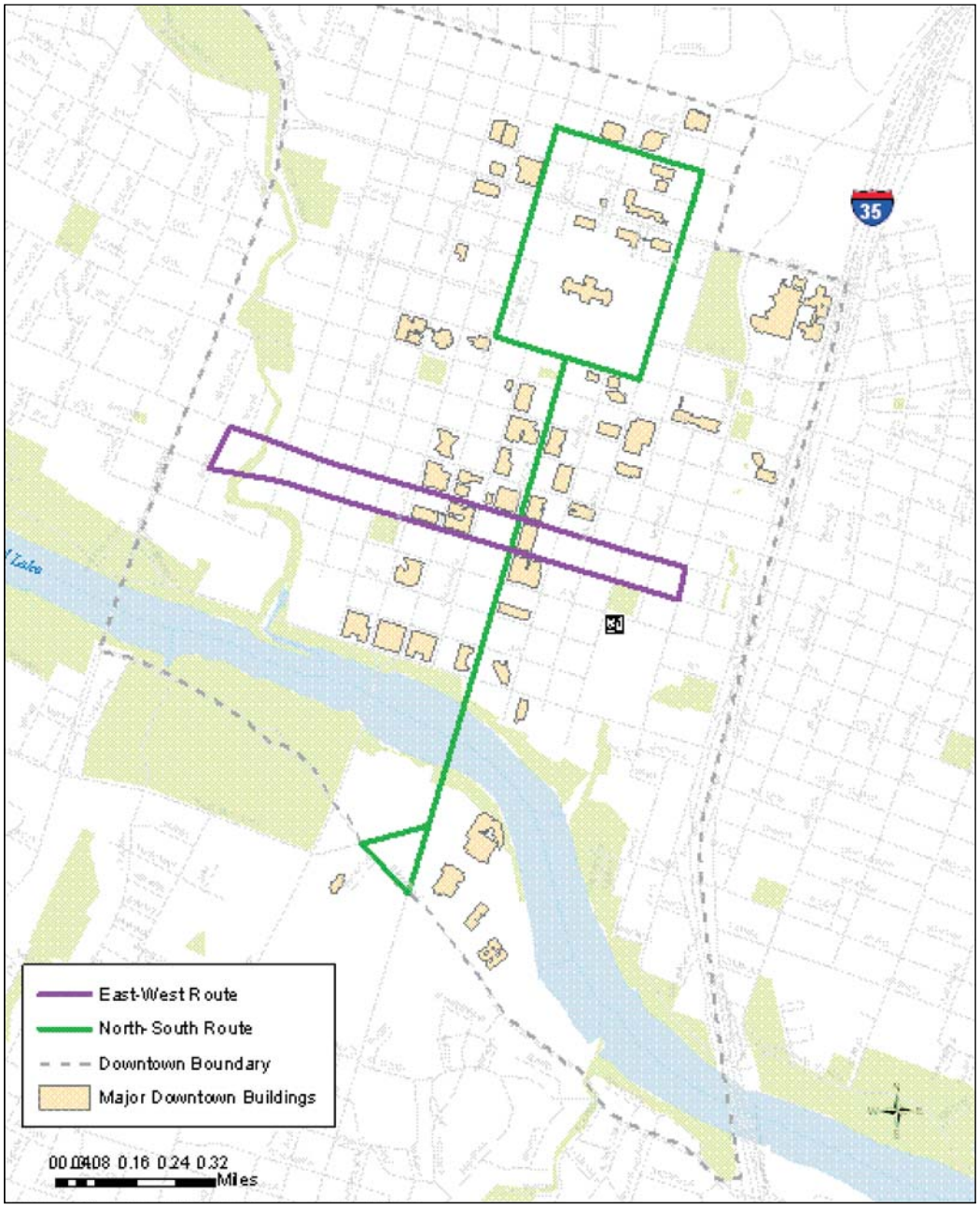


FIGURE 19 'Dillo routes (2007).

Ridership fell following these changes, as the economy slowed and gas prices fell. A strike by Capital Metro operators did not improve the situation. By 2009, the two circulator routes carried only 1,000 riders per weekday, compared with 3,500 in 2006. Capital Metro concluded that 'Dillo service was not essential and discontinued the 'Dillo as a cost-reduction measure.

Benefits and Drawbacks

The chief benefit of the 'Dillo was its ability to provide mobility in downtown Austin. The iconic branding of the service also enhanced the image of transit in Austin. Even one year after discontinuation, residents still ask about the 'Dillo and why they never see it anymore.

The primary drawbacks of the 'Dillo were the vehicles and the decision to charge a fare. Rubber-tired, replica trolley vehicles are attractive and attention getting, but uncomfortable to ride and even harder to maintain. Introduction of even a nominal 50-cent fare went against one rule for attracting choice riders; as stated by the agency, *nothing* can be inconvenient or passengers will not ride.

Changes and Lessons Learned

If Capital Metro could change one aspect of the 'Dillo operation (aside from the timing of the 2007 changes as the economy began its downturn) it would have taken greater care in introducing the fare. Having no fare was a significant factor in the branding of the 'Dillo, and the adverse reaction from riders was stronger than expected.

Capital Metro offers several lessons learned through its operation of the 'Dillo:

- If a fare is charged, it needs to be easy to understand and pay. A major market for the 'Dillo was young people in their first or second job, who would ride their bicycles as an alternative to the 'Dillo. Paying electronically would have been second nature to this tech-savvy demographic group, who also would have welcomed the ability to purchase a monthly pass at convenient locations. Cash is an old-fashioned concept to this market.
- Select iconic, comfortable vehicles. If the 'Dillo were to re-start today, electric hybrid vehicles would be the choice. The replica trolleys were attractive but uncomfortable.
- Consider traffic patterns and flow. Congress Street is very congested and the 'Dillo duplicated regular transit service in this corridor. The 2020 service plan envisions shifting regular transit buses to other corridors, and anticipates commuter rail. A reconstituted 'Dillo would make more sense under this scenario.

Capital Metro's advice to another agency trying to replicate its downtown circulator is to pay attention to the anchor points of the routes in relation to the market for the circulator. A strong route will have anchors at either end. This is important in general transit planning, but is critical for downtown circulators.

The 'Dillo circulator experienced both success and failure. Its discontinuation was a result of low ridership and duplication with other routes. Measures of success included an enhanced image of transit in Austin as a result of the 'Dillo's branding and marketing and the support of a wide group of stakeholders who wanted it to succeed.

CHAPTER SIX

CONCLUSIONS

INTRODUCTION

This chapter summarizes key findings, presents conclusions from this synthesis project, and offers areas for future study. Findings from the surveys and particularly the case studies identify and assess the factors contributing to the success or failure of downtown circulators. The chapter is organized in five sections:

- Circulator Design and Implementation
- Agency Assessments of Downtown Circulators
- Lessons Learned—Survey Respondents
- Lessons Learned—Case Studies
- Conclusions and Areas of Future Study

The future research needs offered here focus on extending the synthesis findings to understand similarities and differences between public-sector and private-sector employers and to enhance the effectiveness of these programs.

CIRCULATOR DESIGN AND IMPLEMENTATION

- The impetus to begin a downtown circulator usually comes from the transit agency, downtown organizations, or elected officials. These agencies and groups are the major stakeholders in the circulator. Improving mobility throughout downtown was usually cited as the purpose of the circulator, although several other goals were also reported by a majority of respondents.
- A program champion is helpful, particularly in the implementation phase. The champion of the circulator is typically either the transit agency general manager, a member of a downtown interest, or an elected official.
- The most common funding arrangement is for the transit agency to pay all costs, although there are a variety of other funding situations. The private sector participates in circulator funding primarily through downtown businesses or business improvement districts. Half of the respondents indicated that the transit agency does not use federal funds for their downtown circulators.
- Twenty-three percent of respondents discontinued, and 17% never implemented, a downtown circulator. Inadequate funding and cost were the principal reasons for never implementing a circulator; low ridership was the major reason for discontinuation. Low productivity, loss of the funding source, and cost also played a role in discontinuation.
- Employees and tourists and visitors are the most common primary markets for a downtown circulator; however, nearly all respondents reported that the circulator was designed to serve more than one market. Close to one-half of respondents indicated that the market for the circulator has changed over time, suggesting the need for flexibility in designing service. Almost 75% of respondents have changed the routing of the circulator to serve emerging markets in or near downtown.
- Slightly more than half of respondents with a downtown circulator operate a network with more than one route. A single loop route and a combination of different types of routes were the most common. The transit agency is typically responsible for the design modification of the route, as well as for day-to-day operation. There are several interesting examples of successful circulators operated by city departments of transportation (DOTs).
- Operating parameters vary, depending on the market for the circulator. The most common start time is during the 6:00 a.m. hour on weekdays, during the 9:00 a.m. hour on Saturday, and during the 10:00 a.m. hour on Sunday. The most common end time is during the 6:00 p.m. hour on weekdays and Sunday and at or after midnight on Saturday. The average span of service is longest on weekdays and shortest on Sunday. Median prevailing headways are 15 min on weekdays and Saturday and 12 min on Sunday (this is the result of less frequent circulator systems not operating on Sunday).
- Most respondents do not charge a fare on their downtown circulator. The fare is a nominal amount (20 or 25 cents) for 6 of the 16 systems that do charge a fare. A wide variety of fare media is accepted on the downtown circulator.
- Introduction of or revisions to a downtown circulator route might offer the opportunity to restructure other routes in the downtown area. Most respondents indicated that introduction of the circulator did not result in changes to other routes. Agencies that did change other routes typically streamlined routes in the downtown area and facilitated transfers between regular routes and the circulator. More than 80% of respondents reported no issues related to complementary ADA service associated with the downtown circulator.
- Agencies have taken different approaches to the integration of the downtown circulator with the transit network. Connections are provided at major transfer points

for the majority of circulators, but almost 20% of respondents indicated that there is no integration and that the circulator is separate from the rest of the transit system.
- A majority of respondents named the transit agency as having overall responsibility for marketing. Agencies promoting tourism, hotels, the convention center, and downtown employers are likely to participate in marketing efforts. A wide variety of marketing activities are undertaken for downtown circulators.
- Survey respondents assessed various elements in terms of whether they were constraining factors in the start-up and ongoing operation of the downtown circulator. Funding is the only element characterized as a major constraint at a majority of agencies. Operating funding dominated the list of major constraints.
- For all circulators in the sample, the median ridership was 600 on weekdays (30 circulators), 1,100 on Saturday (20 circulators), and 1,500 on Sunday (16 circulators). Median productivity (measured as riders per revenue hour) was 23 on weekdays and 26 on both Saturday and Sunday. These results are misleading, because circulators with high ridership are more likely to operate on Saturday and Sunday. After controlling for the number of days per week of operation, median ridership and productivity are highest on weekdays. Median ridership and productivity are generally proportional to service area population; downtown circulators in larger cities have higher ridership and are more productive. Downtown circulators oriented toward tourists and visitors have the highest median ridership and productivity. Circulators in Charlotte, Long Beach, Philadelphia, San Antonio, and Santa Barbara rank highest in the tourist/visitor category in terms of ridership.

AGENCY ASSESSMENTS OF DOWNTOWN CIRCULATORS

- Results regarding the success of the downtown circulator are positive. Thirty-six percent of survey respondents rated the circulator as very successful and 36% rated it as somewhat successful.
- The primary benefits of the downtown circulator include improved downtown mobility and circulation, greater downtown access for transit riders, a way for tourists to get around, a means for employees to get around downtown, and positive impacts on transit (increased ridership and revenue, very frequent downtown service, improved image, and an opportunity to streamline other routes).
- Drawbacks to the downtown circulator involve the tension between providing very frequent and direct service versus serving all locations that want to be served, low speeds owing to downtown congestion, difficulty in maintaining schedules, and negative transit impacts (a circulator takes riders from other routes, maintenance expense, and confusion for regular system riders). Low ridership, expense, irregular demand, and inadequate funding are also concerns. Eleven percent of survey respondents reported no drawbacks.
- Most respondents reported no significant impact to the design and operation of the downtown circulator as a result of downtown's changing role. Several agencies modified the circulator to serve nonresidential trip generators such as hospitals, employment centers, historic sites, retail, schools and universities, and entertainment districts. New residential areas were cited by 13% of respondents. Some of these destinations required changed or expanded times of service.
- Improvements related to more and more certain funding from a variety of sources were most frequently mentioned. Many other responses were also received, some of which conflicted with each other; for example, more public input versus limited outreach efforts or whether to implement versus discontinue a fare-free zone. This question elicited the greatest variety of comments and the least convergence on a clear set of desired improvements.

LESSONS LEARNED—SURVEY RESPONDENTS

Survey respondents shared lessons learned from the planning, implementation, and operation of downtown circulators. The lessons learned were grouped into ten broad categories. Lessons regarding partnerships led the list of topic areas, followed by service design and branding/attracting new riders.

- Partnerships are important when planning and implementing a downtown circulator. Although funding partnerships are ideal, these are the exception rather than the rule. The process of enlisting a diverse group of stakeholders early on in the design of the service results in valuable input regarding routing decisions as well as ownership in the circulator concept. Partnerships provide political support for the circulator and change the perception of transit in the business community. Ongoing communication once the circulator is in operation is of great value in maintaining interest and support.
- Frequent service is one key to success. Respondents cited 10 min or better as an ideal frequency, whereas the median frequency of downtown circulators was reported as 10 to 15 min. Short routes mitigate the cost of frequent operation while still connecting as many destinations as possible. Simple and direct routes are important, as are consistent, clockface headways.
- Branding the downtown circulator with a unique, interesting paint and graphics scheme to make the vehicles stand out is especially important if the target market is visitors and tourists. The downtown circulator is the face of the transit system to visitors and nontransit users who work or live downtown.
- Friendly operators knowledgeable about downtown are important for attracting new riders. Some respondents reported working with their operators' union to select and train drivers who can double as downtown ambassadors.

- No fare or a nominal fare is a positive factor for downtown circulators. There are always tradeoffs involved with no fare, but they contribute to the simplicity of riding the circulator.
- A stable, reliable funding source is ideal. Two pitfalls of using general transit or city funds are: (1) circulator service is vulnerable to funding cuts in tight economic times, because most downtowns are well-served by existing routes; and (2) circulators may be so politically popular that other, more vital service is cut first.
- An "If you build it, they will come" approach is not realistic. A new circulator will not bring new customers to a struggling downtown. It is important to establish realistic performance targets and to communicate these to stakeholders at the outset.
- Flexibility is important, especially given the changing role of downtown in many cities. Most respondents have changed their circulator in response to changes in downtown. It is important to track changes to the downtown landscape and adjust service accordingly.
- Maintenance issues are sometimes overlooked in the decision of what type of vehicles to use. Higher maintenance costs may be acceptable if an environmentally friendly electric or hybrid vehicle is used; however, the agency needs to be aware of these costs when making the decision.

LESSONS LEARNED—CASE STUDIES

- Capital Metro in Austin, Texas, implemented a downtown shuttle, the 'Dillo, in the 1970s. The 'Dillo went through several transformations as an iconic part of downtown before being discontinued in 2009 owing to budget issues (the only case study of a service no longer in existence). Part of its demise was the result of the impact of instituting a fare; if a fare is charged, it needs to be easy to understand and pay, and that may mean different things for a young, tech-savvy market. Use of branded *and* comfortable vehicles is important. Planning for traffic flow and integration of the circulator into the existing transit network, with anchor destinations at either end of the route, helps to ensure success. Measures of success include the support of a wide group of stakeholders who wanted it to succeed and iconic branding and marketing that enhanced the image of transit in Austin. Its discontinuation was a result of low ridership and duplication with other routes.
- Baltimore City DOT recently implemented the Charm City Circulator after three unsuccessful attempts to establish a downtown circulator over the past 20 years. Two of the three planned routes began operation in 2010. The DOT emphasized simple, readily understandable routes, even though this meant that all stakeholders were not pleased. A stable, reliable funding source (a portion of the city parking tax) is essential; previous efforts showed that reliance on voluntary contributions does not work. The DOT dedicated 5% of operating funds to marketing, recognizing that circulator service needs to be highly differentiated from other transit services. Success can be measured quantitatively, based on ridership and productivity, but certain intangibles need to be included in the definition of success. In Baltimore's case, the intangibles include added confidence in downtown and the breadth of support from elected officials, downtown interests, and the transit agency.
- CTTRANSIT began operation of a downtown circulator in Hartford in September 2005. The market for the circulator is clearly defined as tourists and visitors; the circulator is a single loop route 2.5 miles in length connecting the convention center and the hotels. Important lessons learned included the importance of defining the target market, operating frequent service on a short route that connects major downtown destinations, branding of the service and the buses for the tourist and visitor market, obtaining buy-in from the transit union to allow for a special selection of drivers that are trained as community ambassadors/visitor guides, no fare, and working with partners willing to lobby for the service. Success is measured partly but not entirely on ridership, and the definition of success goes back to the reason for starting the service. The downtown circulator is an important sales tool for the Convention and Visitors Bureau and provides an advantage in competing for convention business.
- The city of Los Angeles DOT (LADOT) began operation of the Downtown DASH in 1985. Since that time, the downtown circulator system has grown to six weekday and three weekend routes throughout downtown Los Angeles. Coordination with other agencies is important in clarifying the role of the downtown circulator. Obtaining feedback from various downtown interests helps LADOT to understand its needs and plan service effectively. Frequent service, clarity regarding the market for Downtown DASH, ease of use, service quality, and a distinctive brand are essential to success. Reviewing service performance on a regular cycle ensures that changes to the downtown landscape and neighboring areas are identified. LADOT views ridership as the best indicator of success, especially given its diverse customer base in downtown Los Angeles.
- Transit Authority of River City (TARC) began operation of a downtown circulator in Louisville in 1987 as part of a revitalization plan for 4th Street, and in 1996 replaced buses with trolleys on a downtown circulator route along Main and Market Streets. With support from art galleries and local businesses, TARC also operates trolleys on the first and last Friday of each month. The downtown circulators provide greater exposure to transit for community members who do not ride the bus. Appearances matter, both in terms of public reaction and the trolleys' contribution to a positive image of downtown. This builds support for transit among key stakeholders. Frequent service (every 7 to 10 min on both routes) is necessary to attract riders. A dedicated lane or signal priority to increase speeds would be desirable.

The special Friday night trolleys are extremely valuable in associating TARC with the vibrancy of the community. The need to communicate clearly with decision makers and stakeholders at all stages is vital to success; stakeholders need to be on board as part of the experiment, not after the fact. Measuring success involves the answer to the question: why are we doing this? If the vibrancy and attractiveness of downtown is the answer, then it is important to develop metrics in addition to ridership, such as how many people come downtown.

- The Central Philadelphia transportation management association (TMA), affiliated with the Center City District, manages the downtown circulator known as the Phlash. Mayor (and subsequently Governor) Rendell has been the lead champion of Phlash service. The market for the Phlash is clearly defined as tourists and visitors. The primary benefit of the Phlash is that it provides a low-cost, easy link, aimed primarily at visitors, between downtown Philadelphia's historic destinations and the city's cultural attractions. The primary drawback of the downtown circulator is funding; other drawbacks include its seasonal nature, with no service from November through April, and difficulty meeting headways consistently as a result of downtown traffic. The TMA offers a single lesson learned: a subsidy is required to operate; the circulator does not make money. Success is measured by ridership and also by the number of satisfied riders. Rider satisfaction is the TMA's most important goal: making visitors to Philadelphia feel welcome and putting them at ease on how to get around to all the major attractions in the city.
- The District DOT (DDOT) funds and oversees the DC Circulator network in Washington, D.C. The primary market for the DC Circulator was originally downtown employees. As the circulator system has expanded into other neighborhoods, markets have changed: employees are the dominant market during the day, but the focus shifts to entertainment at night. The DC Circulator routes have fewer stops than a typical transit route, giving the impression among riders that you can get anywhere within 10 min. DDOT is committed to frequent service, preferring to cut span of service or route length to preserve the 10-min frequency. Success is measured by ridership, by riders' preference for the circulator over other modes, and by the ability to attract choice riders. DDOT attributes this to direct service connecting major activity centers, an attractive price, the limited number of stops, and distinctive, comfortable buses.

CONCLUSIONS AND AREAS OF FUTURE STUDY

- **Funding is critical to success.** A stable, reliable funding source is necessary. Funding, especially operating funding, was the only factor cited as a major constraint by a majority of survey respondents, and is also a dominant factor among agencies that discontinued or never implemented a downtown circulator.
- **Branding of the service, vehicles, and stops is imperative to establish the circulator's identity, particularly if the target market is tourists and visitors and/or nontransit riders.** Successful downtown circulators have their own identity through a distinctive graphic and paint scheme that stands out in a busy downtown. The downtown circulators serve as the face of the transit system to tourists and downtown employees and residents; thus, branding can enhance the overall image of the transit system. Customer friendly operators who function as downtown ambassadors are an important part of the branding.
- **Simple linear routes with frequent and reliable service, no fares, and clockface headways are most attractive to riders.** Frequent service and simplicity in route design and fare payment are emphasized repeatedly in the survey results and case studies. Loop routes may be the best option in certain cases (see for example the Hartford case study). Queue-jumpers or signal priority can speed up the circulator trips in congested downtown traffic and increase reliability. A circulator can provide the opportunity for a restructuring or streamlining of other routes in downtown, although most survey respondents have not done so. Free or nominal fares are attractive. The experience in Austin, Texas, provides food for thought: a major component of the downtown circulator market was young people in the first or second job out of college. Paying electronically and being able to purchase electronic media at locations that they frequented would have been second nature to this tech-savvy demographic. One rule for attracting nontransit riders is: *nothing* can be inconvenient or they will not ride.
- **The most common target markets for downtown circulators are employees and tourists and visitors.** Most survey respondents indicated that, although there may be a single primary market, they also serve other markets. In downtown circulator systems with multiple routes each route may serve a slightly different market. Interestingly, downtown circulators oriented toward the visitor/tourist market had the highest median ridership and productivity.
- **Partnerships are vital in building a successful downtown circulator.** Many agencies naturally think of partnerships in financial terms, but these are the exception and not the rule. Partnerships are very important in providing political support for the circulator and are a means to change the perception of transit in the business community.
- **Size does matter.** Median daily weekday ridership for downtown circulators at agencies with a service area population under 500,000 (a proxy for size of downtown) was 450. Only 2 of these 13 agencies reported a daily ridership as high as 1,000 on their circulators; both are oriented toward the tourist market, and one only operates during the winter in a ski resort area. There are other definitions of success than ridership, but

small cities can anticipate limited ridership for a downtown circulator.

Findings from this synthesis suggest four major areas of future study:

- *Effective strategies for a downtown circulator in downtowns of various sizes and composition.* The case studies present examples of downtown circulators oriented toward different markets and in different downtown environments. How does a city or transit agency make a decision as to which market to serve? Do tourist and visitor downtown circulators require a certain size of downtown or special attractions? Is the combination of a convention center and nearby hotels sufficient to justify a circulator? Is there a minimum employment density that warrants an employee-based circulator?
- *Who should operate the downtown circulator?* In four of the seven case studies the regional transit agency was not the operator of the downtown circulator. This frequently reflects a regional focus on the part of the transit agency and a willingness to have municipal partners or the private sector operate local shuttles, in downtown or elsewhere. How do factors such as expertise, flexibility, politics, stakeholders, and access to funding sources (to name only a few) affect this decision? Several of the downtown circulators operated by a city DOT or private-sector agency are relatively new. As their circulators mature, it would be interesting to see if these are different in significant ways from circulators operated by transit agencies.
- *Measures of success.* The case studies cited both quantitative and qualitative measures of success. Who decides whether a downtown circulator is successful? How do intangible measures of success fare over time, particularly in times of tight budgets? Are intangible measures more prominent if there is a dedicated funding source? Does the measure of success change over time? The case study agencies all discussed and defined success, but further research in this area would be illuminating.
- *Applicability of lessons from downtown circulators to other areas.* Can experiences with downtown circulators be applied elsewhere? Are there lessons for neighborhood circulators or for circulators serving rail stations outside of downtown areas? How do these lessons apply?

ACRONYMS

AATA	Ann Arbor Transportation Authority
ADA	Americans with Disabilities Act
APM	Automatic People Mover or Automated People Mover
BID	Business Improvement District
CBD	Central Business District
CMAQ	Congestion Mitigation and Air Quality Improvement Program
DOT	Department of Transportation
MPO	Metropolitan Planning Organization
MTA	Maryland Transit Administration
NTD	National Transit Database
RFA	Ride Free Area
TMA	Transportation Management Association
TRIS	Transportation Research Information Services

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APPENDIX A

TCRP Synthesis Survey: Development and Deployment of Downtown Circulators

TCRP Downtown Circulators

1. Default Section

1. Today's Date

MM DD YYYY

MM/DD/YYYY ____ / ____ / ____

* 2. Please list your name, agency, and contact information

Name:

Company:

Title:

City/Town:

State/Province:

Email Address:

Phone Number:

2. Downtown Circulators

* 3. Is there a downtown circulator currently operating within your agency's service area?

- ◯ Yes
- ◯ No

3. No circulator

4. In the past, has there been a downtown circulator within your agency's service area that is no longer in operation?

- ◯ Yes
- ◯ No
- ◯ Not sure/don't know

4. Reasons for no circulator

TCRP Downtown Circulators

5. What are the reasons that a downtown circulator has not been implemented (check all that apply)?

- [ ] Downtown is too small
- [ ] Downtown is well-served by existing routes
- [ ] Lack of interest from downtown businesses/employers
- [ ] Lack of interest within agency
- [ ] Cost
- [ ] Lack of funding
- [ ] Other (please specify)

5. No Longer Operating

6. Why is this downtown circulator no longer in operation (check all that apply)?

- [ ] Low ridership
- [ ] Low productivity
- [ ] Cost of providing service
- [ ] Funding source was discontinued
- [ ] Lack of support from private sector
- [ ] Other (please specify)

6. Fare Free Zone

7. Does your transit agency offer a fare-free zone in downtown?

- ◯ Yes
- ◯ No

TCRP Downtown Circulators

7. Yes to fare-free zone

Please continue with the survey changing references to "downtown circulator" to "fare-free zone." Such an arrangement is a functional equivalent to a circulator.

8. Who operates

8. Is the transit agency or its contractor the operator of the downtown circulator?

◯ Yes

◯ No - if no, please provide the name and email address of the most appropriate person to fill out this survey at the agency that operates the downtown circulator.

Other (please specify)

9. Assessment

9. How would your agency rate the downtown circulator?

◯ Very successful

◯ Somewhat successful

◯ Neutral

◯ Somewhat unsuccessful

◯ Very unsuccessful

10. What have been the primary benefits of the downtown circulator?

11. What have been the primary drawbacks of the downtown circulator?

TCRP Downtown Circulators

12. Has the changing role of downtown (e.g., a shift from central business district to principal activity center with a mix of retail, jobs, and housing) influenced the design and operation of your agency's downtown circulator? If so, please explain.

13. If you could change ONE aspect in the process of designing and implementing the downtown circulator, what would you change?

14. Please describe any "lessons learned" that would benefit other transit agencies that are considering implementation of a downtown circulator.

10. Beginnings

TCRP Downtown Circulators

15. What was the PRIMARY reason for implementing a downtown circulator?

- ◯ Transit agency desire to provide better connections within downtown
- ◯ Request from downtown businesses/employers or TMA
- ◯ Request from downtown convention center or hotels
- ◯ Opportunity for public-private partnership with private-sector financing
- ◯ Downtown transit center moved to new location; need to continue to serve heart of downtown
- ◯ New rail service required connection to downtown
- ◯ Elected officials encouraged or dictated implementation
- ◯ Other (please specify)

16. Who are the stakeholders in the downtown circulator? In other words, who has played an active role in bringing this concept to implementation and in continuing to support it (check all that apply)?

- ☐ Transit agency
- ☐ City elected officials
- ☐ Downtown businesses/employers
- ☐ Downtown convention center
- ☐ Downtown hotels
- ☐ Transportation Management Association (TMA)
- ☐ Other (please specify)

TCRP Downtown Circulators

17. What are the main purposes or goals of the downtown circulator (check all that apply)?

- [ ] Improve general mobility throughout the downtown area
- [ ] Encourage downtown revitalization
- [ ] Support a "park once" concept, where the circulator connects parking and downtown destinations
- [ ] Encourage public transit use by employees
- [ ] Encourage public transit use by shoppers
- [ ] Provide a way to get around for convention-goers
- [ ] Provide a way to get around for visitors in downtown hotels
- [ ] Connect a new transit center to the heart of downtown
- [ ] Connect a rail station to the heart of downtown
- [ ] Serve residential areas in or near downtown
- [ ] Other (please specify)

18. Who has been the program's primary "champion?"

- ◯ Agency general manager
- ◯ Others in transit agency (please specify below)
- ◯ City elected officials
- ◯ Downtown employers
- ◯ Downtown convention center/hotels
- ◯ Transportation Management Association (TMA)
- ◯ Other (please specify)

11. Markets

TCRP Downtown Circulators

19. What is the primary market for the downtown circulator?

- ◯ Employees
- ◯ Shoppers
- ◯ Downtown residents
- ◯ Tourists/visitors
- ◯ Other (please specify)

20. Does the downtown circulator also serve other markets (check all that apply)?

- ☐ No – sole focus is on the primary market noted in previous question
- ☐ Yes, also employees
- ☐ Yes, also shoppers
- ☐ Yes, also downtown residents
- ☐ Yes, also tourists
- ☐ Other (please specify)

21. Has the market for the downtown circulator changed over the years?

- ◯ Yes
- ◯ No

12. Markets2

TCRP Downtown Circulators

22. Has the route of the circulator been changed to include locations that are important to new markets (check all that apply)?

- [ ] No, the route has not changed – new markets are incidental to the primary market for service
- [ ] Yes, changed to serve employment sites
- [ ] Yes, changed to serve retail sites
- [ ] Yes, changed to serve downtown residential areas
- [ ] Yes, changed to serve hotels/convention center
- [ ] Yes, changed to serve new transit center
- [ ] Yes, changed to serve rail station
- [ ] Other (please specify)

13. Route Structure

23. Describe the design of the downtown circulator:

- [ ] A single linear route
- [ ] A single loop route
- [ ] A single flexible route
- [ ] Multiple linear routes
- [ ] Multiple loop routes
- [ ] Multiple flexible routes
- [ ] Combination of different types of routes
- [ ] Other (please specify)

TCRP Downtown Circulators

24. Who designed the routing of the downtown circulator (check all that apply)?

- [ ] Transit agency
- [ ] City
- [ ] TMA
- [ ] Private sector entity
- [ ] Other (please specify)

25. Who decides on any proposed changes to the routing of the downtown circulator (check all that apply)?

- [ ] Transit agency
- [ ] City
- [ ] TMA
- [ ] Private sector entity
- [ ] Other (please specify)

14. Administration1

26. Who is primarily responsible for day-to-day operation of the downtown circulator? If operation is contracted, consider the entity that oversees the contract as the responsible entity. Check all that apply.

- ◯ Transit agency
- ◯ City
- ◯ TMA
- ◯ Private sector entity
- ◯ Other (please specify)

15. Admininstration2

TCRP Downtown Circulators

27. Describe the nature of the interaction with the transit agency regarding the downtown circulator.

- ◯ Close cooperation – frequent contact (at least weekly)
- ◯ Cooperation – contact as needed
- ◯ Neutral – the circulator is viewed as a separate entity
- ◯ Hostility

16. Administration3

28. How is the operation of the downtown circulator funded (check all that apply)

- ☐ Grant to transit agency specifically for the circulator
- ☐ Grant to city specifically for the circulator
- ☐ Transit agency pays all costs
- ☐ Transit agency splits costs with City or other public entity
- ☐ Transit agency splits costs with private sector
- ☐ City pays all costs
- ☐ City splits costs with private sector
- ☐ Private sector pays all costs
- ☐ Other (please specify)

17. Administration4

29. Which private sector entity contributes to the cost of the downtown circulator (check all that apply)?

- ☐ TMA
- ☐ Downtown businesses or business improvement district
- ☐ Convention Center
- ☐ Hotels
- ☐ None
- ☐ Other (please specify)

TCRP Downtown Circulators

18. Administration5

30. Does the transit agency use Federal funds for the cost of the downtown circulator?

- ◯ Yes
- ◯ No
- ◯ Don't know/not sure

19. Operation

31. What type of vehicle is used to provide downtown circulator service?

- ◯ Transit bus 30 feet or larger
- ◯ Transit bus under 30 feet
- ◯ Cutaway
- ◯ Van
- ◯ Rubber-tired trolley
- ◯ Steel-wheel trolley
- ◯ Mix of vehicles
- ◯ Other (please specify)

32. Are the downtown circulator vehicles specially branded?

- ◯ Yes
- ◯ No - same as all transit vehicles

33. Who purchases the vehicles?

- ◯ Transit agency
- ◯ City
- ◯ Other (please specify)

TCRP Downtown Circulators

34. Who maintains the vehicles?

- ◯ Transit agency
- ◯ City
- ◯ Contractor
- ◯ Other (please specify)

35. Please enter the start and end times and headway (how often buses run) for service on the downtown circulator for weekday service. If circulator does not operate on weekdays, enter NA.

Start time of first trip
Start time of last trip
Prevailing headway

36. Please enter the start and end times and headway (how often buses run) for service on the downtown circulator for Saturday service. If circulator does not operate on Saturday, enter NA.

Start time of first trip
Start time of last trip
Prevailing headway

37. Please enter the start and end times and headway (how often buses run) for service on the downtown circulator for Sunday service. If circulator does not operate on Sunday, enter NA.

Start time of first trip
Start time of last trip
Prevailing headway

38. Do you charge a fare for the downtown circulator?

- ◯ Yes
- ◯ No

20. Operation2

39. What is the cash fare for the downtown circulator?

Cash fare

TCRP Downtown Circulators

40. What fare media are accepted on the downtown circulator (check all that apply)?

- [ ] Cash
- [ ] Transfers within the circulator system
- [ ] Transit agency transfers
- [ ] Downtown circulator passes
- [ ] Transit agency monthly passes
- [ ] Transit agency day passes
- [ ] Transit agency other passes
- [ ] Tokens
- [ ] Other (please specify)

21. Operation3

41. Has introduction or revision of the downtown circulator allowed the transit agency to make changes to other routes?

- ◯ No
- ◯ Yes

22. Operation4

42. Please describe the changes to other routes.

23. Operation5

TCRP Downtown Circulators

43. How has the downtown circulator been integrated with the transit system route pattern (check all that apply)?

- [ ] Connections at major transfer points
- [ ] No duplication of existing route segments
- [ ] Added stops
- [ ] Fewer stops
- [ ] No integration – the circulator is separate from the existing system
- [ ] Other (please specify)

44. Have there been issues regarding complementary ADA service associated with the downtown circulator?

- ◯ Yes
- ◯ No – no change to service area/hours of operation
- ◯ Unsure

24. Operation6

45. Please describe the issues related to complementary ADA service associated with the downtown circulator.

25. Barriers, Obstacles, and Constraints

TCRP Downtown Circulators

46. Please characterize the following elements as major constraints, minor constraints, or not a constraint in the start-up and ongoing operation of the downtown circulator.

	Major Constraint	Minor Constraint	Not a Constraint
Funding in general	◯	◯	◯
Use of Federal funds	◯	◯	◯
Cooperation with new partners	◯	◯	◯
Downtown-neighborhood tension	◯	◯	◯
Difficulty in defining the target market	◯	◯	◯
Inability to identify a long-range funding source	◯	◯	◯
Maintaining interest among stakeholders	◯	◯	◯
Parking policies in downtown	◯	◯	◯
Difficulty in defining the route	◯	◯	◯
Disagreement on fares/fare instruments	◯	◯	◯
Other (see below)	◯	◯	◯

Other (please specify)

47. Please describe the nature of the MAJOR constraint affecting the downtown circulator below.

26. Marketing

TCRP Downtown Circulators

48. Who markets the downtown circulator service, and who has overall responsibility for marketing?

	Overall Responsibility	Participates in Marketing Efforts
Transit agency	◯	◯
City	◯	◯
TMA	◯	◯
Downtown businesses	◯	◯
Downtown employers	◯	◯
Agencies promoting tourism	◯	◯
Convention center	◯	◯
Hotels	◯	◯
Other (see below)	◯	◯

Other (please specify)

49. What type of marketing activities are undertaken for the downtown circulator?

27. Ridership and Productivity

50. What is the average daily ridership on the downtown circulator (including all routes, if more than one route is operated)?

Weekday
Saturday
Sunday

51. What is the average number of riders per revenue hour on the downtown circulator (including all routes, if more than one route is operated)?

Weekday
Saturday
Sunday

28. Case Study

TCRP Downtown Circulators

52. Would you be willing to participate further as a case study, involving a telephone interview going into further detail on your agency's experience with downtown circulators, if selected by the TCRP panel for this project?

- ◯ Yes
- ◯ No

29. Other agencies

53. Is there another transit system that you suggest we contact for this synthesis project?

30. Thank you!

Thank you for participating! This survey is now complete. Please contact Dan Boyle at dboyle34@pacbell.net or at 858-259-6515 if you would like any additional information about this study.

APPENDIX B

Summary of Survey Results

Development and Deployment of Downtown Circulators

RESPONDENT INFORMATION

1. Date:

2. Contact Information

   Name of respondent:

   Agency name:

   Title of respondent:

   Agency address:

   Agency size (note: this was entered after survey responses were received, based on FY 2008 NTD data)

Small (<250 peak buses)	57	73.1%
Medium (250–1,000 peak buses)	14	17.9%
Large (1,000+ peak buses)	7	9.0%

   Respondent e-mail address:

   Respondent telephone number:

DOWNTOWN CIRCULATORS

3. Is there a downtown circulator currently operating within your agency's service area?

Yes	60.3%	47
No	39.7%	31

NO PROGRAM

4. In the past, has there been a downtown circulator within your agency's service area that is no longer in operation?

Yes	58.1%	18
No	32.3%	10
Unsure	9.7%	3

5. What are the reasons that a downtown circulator has not been implemented (check all that apply)?

Lack of funding	61.5%	8

Cost	53.8%	7
Downtown is too small	30.8%	4
Downtown is well served by existing routes	23.1%	3
Lack of interest from downtown businesses/employers	7.7%	1
Lack of interest within agency	7.7%	1
Other (please specify)	30.8%	4

Other includes: (1) Recession impacted ability to build and launch—delayed, but still breathing. (2) Regional suburban service with multiple suburban downtowns. Our strategic plan identifies local distribution systems, which include downtown circulators as appropriate to connection with regional Arterial Bus Rapid Transit, express routes, and main line corridor services. We do however operate suburban distribution systems in retail/shopping centers, while not "downtowns" serve as distributors from mainline services. (3) Downtown is served by frequent light rail service that runs in a loop through downtown. The downtown redevelopment agency and port district are in the planning stage for a bus circulator required as mitigation for a waterfront development project. (4) We will begin a free downtown circulator in Spring 2010, which has support from the mayor and the business community.

NO LONGER OPERATING

6. Why is this downtown circulator no longer in operation (check all that apply)?

Low ridership	55.6%	10
Low productivity	44.8%	8
Funding source was discontinued	38.9%	7
Cost of providing service	33.3%	6
Lack of support from private sector	16.7%	3
Other (please specify)	33.3%	6

Other includes: (1) I am not sure why the old circulator is no longer in operation but I believe it is a multitude of reasons. (2) It was a midday shopper shuttle/circulator designed to bring state employees downtown to eat and shop. Over time ridership dwindled. (3) The circulator that formerly operated was a bus circulator that operated through the traditional office/retail core of the CBD. When our light rail system began operating the CBD [central business district] mall, including four stations, attracted most of the ridership that was formerly serviced by the circulator. The light rail headways were more reliable than those of a bus service operating in a relatively congested core area. The reasons for the circulator's demise included: decreasing ridership on the circulator and the recognition, on our part, that the circulator resources could be utilized more effectively. (4) Trolleys used were old and hard to maintain. (5) On two occasions we tried to implement a City Centre Shuttle. At the first go-round, there was private funding behind the service where $1.00 per ride was charged. The service was cut due to lack of ridership. The second iteration, there was no private funding yet the political will was there to try it again. Unfortunately, conditions had not changed greatly since the last iteration and we were once again plagued by low ridership. If interested, I could forward a more detailed Corporate Report which outlines the ridership, cost of service, and the rationale behind the failure of the service. (6) A circulator route was tried twice in the downtown of a suburban city. A ride-free area has been in existence in our primary downtown since the mid-1970s.

DOWNTOWN FARE FREE ZONE

7. Does your transit agency offer a fare-free zone in downtown?

Yes	12.9%	4
No	87.1%	27

If Yes, please continue with the survey changing references to "downtown circulator" to "fare-free zone." Such an arrangement is a functional equivalent to a circulator.

WHO OPERATES

8. Is the transit agency or its contractor the operator of the downtown circulator?

Yes	94.0%	47
No	6.0%	3

If no, please provide the name and email address of the most appropriate person to fill out this survey at the agency that operates the downtown circulator.

ASSESSMENT

9. How would your agency rate the downtown circulator?

Very successful	36.2%	17
Somewhat successful	36.2%	17
Neutral	17.0%	8
Somewhat unsuccessful	8.5%	4
Very unsuccessful	2.1%	1

10. What have been the primary benefits of the downtown circulator?

Responses summarized in Table 38 of report. Verbatim responses are provided here.

Many seniors live in the downtown and this service helps them to get around, especially during the winter months.

It provides a low cost, easy link, aimed primarily at visitors, between downtown's historic destinations and our cultural attractions, a distance of about 2 miles. Just last year we added a "leg" from the cultural attractions to our Zoo and children's museum west of the downtown area.

Getting people to jobs, promoting economic vitality, fun to ride

The downtown rail circulator system has been a catalyst for downtown redevelopment. Ridership continues to grow and the system provides additional transportation capacity during peak periods and special events.

It was implemented when the Authority moved their downtown location. Making downtown trips reduced the public outcry against "change."

Enormous change in public perception toward bus because of frequent service, strong branding, great customer service, and easy to understand routes. Linkages to downtown destinations were vastly improved. Circulator does cross-promotion with business improvement districts so there is an increased positive linkage between local businesses and transit serving those businesses. Previously there were no single routes connecting some of our most important activity centers without having to transfer on multiple buses or from bus to rail—people able to traverse the city more easily with a one-seat ride.

Provides high frequent transportation during the winter season for free

Downtown distribution from rail and other bus services

Free connections to ride short distances within downtown area

We have been able to provide very frequent service to our downtown riders by providing this added service. We can tell customers that they can board a train as frequently as every 5 minutes.

Useful link for tourists and convention goers. Economic development tool

The service has been able to link three business districts, three Gold Line light rail stations, and two higher educational institutions.

Inexpensive fares (subsidized by the city) for passengers

Shuttle for tourists during peak tourism months.

Geographic coverage in the CBD.

Connects many points of interest with short one-seat one-ride trips; connects regional transit center with downtown.

It has effectively replaced more costly dial-a-ride service for routine trips both in downtown and the rest of this city.

Increased ridership.

Providing a link from a park-n-ride location on the fringe of downtown for workers and access to the train station; plus the local unemployment and training office and new convention center in the downtown.

Good connector to outlying routes

30-minute frequency (convenience)

No fare to ride

Relatively small area of north/south downtown

It is a highly visible service that has great downtown and political support. It allowed partnerships to be formed between Intercity Transit, city and state government, other agencies, downtown organizations, businesses, and neighborhood groups. It has been a great "introduction" to public transportation for many members of our community.

Built connections to business community and route; is one of the highest productivity lines.

Provides added mobility options for travel in downtown area during hours of operation.

Lessening of congestion, access to service, and consolidation of parking

The circulator transports downtown workers and people called for jury duty to and from downtown parking lots.

We operate two circulators in the downtown area: (1) connecting dense employment area with the Metrorail Station, which is reasonably successful; (2) Seaport connection with Metrorail Station which is essentially unsuccessful but there is no alternative transit service.

It is a benefit to downtown workers and to tourists who can ride to the various venues in downtown. It helps move people, especially during lunch hours, and thus benefits the restaurant business in downtown. It also adds to the ambiance of downtown with the use of the trolley replica buses that are used on the service. It reduces the need to drive for the business class who go to meetings in buildings other than their own.

A new circulator was started on August 31, 2009, to connect the train station with downtown. The service operates Monday through Friday from 6 a.m. to 10 p.m. The service is free and it provides a connection for visitors and commuters to easily travel between the center of downtown and the train station. The downtown stop is at the pulse point for all regional bus routes.

Better access for residents to the downtown area, jobs and recreational activities, and connectivity to the entire transit system at the downtown hub.

The downtown circulator is a vital mobility component for the area. The downtown circulators connect many waterfront points of interest, such as the Aquarium, museums, the Convention Center, Shoreline Village, the Sports Arena, and surrounding hotels and business/government hubs. It is well received by the community and provides an efficient transportation option for visitors and workers in the downtown area.

The primary benefits are that it is operated by electric vehicles, which has given the transit agency worldwide positive exposure; that it provides economic benefits to businesses on the circulator route due in part to its frequency (6 minutes) and the fact that no fare is charged to ride. It has provided additional revenue to the transit agency in that it has become a popular mode of advertising. Nine of our electric buses have been wrapped at $20,000.00 per bus annually. Revenue collected from the two parking garages that anchor our DTS as well as parking revenue collected from meters (the transit agency as an authority maintains parking meters and gets the revenue from the meters) fund about 75% of the cost of operating the shuttle.

Provides connection for commuters between the downtown transportation center (commuter rail and buses) and the main employment sites in downtown.

Provides some internal circulation for the downtown area.

Replaced time-consuming downtown loop on all bus routes as they entered and left the downtown—saved bus time on those routes and reduced travel time for passengers who come to downtown only to transfer.

Brings people from downtown fringe area parking into the CBD for employment. Connects people in the CBD to our downtown transit center and to routes that do not circulate through the downtown.

Better mobility within the central business district. Reduced traffic congestion and improved air quality.

Since its introduction in 2003, ridership on the downtown circulator increased monthly at a pace faster than any other route operated by the transit agency. This trend continued until March 2009 when revenue shortfalls required the transit agency to reduce the span and frequency of service. Prior to service reductions, the popularity of the service was recognized by downtown visitors and merchants alike. Many of our passengers were first-time transit users and included people who would not or do not ride the other routes in the system.

Provides a premium, easily recognizable service in an area where there is a lot of transit service that is not well-received by "choice" transit riders.

Provides a "one-park" solution, so that tourists don't have to drive to multiple destinations in the downtown area.

Circulation. Seriously. Two of the three do a very good job of connecting distant parts of CBD that is otherwise quite congested with traffic.

Provides circulation around downtown area.

Provides distribution from light rail transit to various portions of the downtown area.

The downtown Ride-Free Area (RFA) is seen as a convenience and inducement for people to use transit for travel within the downtown free zone between the hours of 5:00 a.m. and 7:00 p.m. (fares are charged between 7:00 p.m. and 5:00 a.m.). Shorter dwell times for buses has also been a benefit of the RFA, although for outbound buses delays have been transferred to bus stops outside the downtown area on heavily used routes due to time consumed by alighting passengers queuing or showing passes before leaving the bus by the front door. A 2008 assessment found that 3.4 million annual trips were made within the RFA that did not involve a transfer to/from revenue service.

Connects activity centers in and around downtown and is free for passengers. Makes connections that the local fixed route bus system does not.

Circulator was conceived as a free connection between a new state-owned convention center, hotels, restaurants, and the arts and entertainment districts. Ridership is very strong when there is a convention at the center that uses many downtown hotels for attendees. The existence of the shuttle is a major sales tool for the Convention and Visitor's Bureau to help pitch the city as a site for conventions.

It alleviates congestion and parking problems in downtown. It provides a benefit to downtown merchants by bringing potential customers from the beach area hotels.

Relocation of suburban highway coaches and other buses to peripheral stations.
Full access to CBD for Local and Limited routes that cross downtown at right angles to the main streets.
Revival of Lower Downtown restaurant district, by making it easy to reach beyond normal walking distance from high-rise offices and major hotels.
Service utilized by broad cross section of population, including affluent who otherwise would feel that they gain nothing from transit system.

Allowing more people to use the regional rail and bus system and then connect to the downtown circulator (DASH) to get to their places of employment.

Allowing those that use the regional public system to get around downtown for meetings, lunch, shopping, etc. Provide those that live in the downtown area with an alternative to driving their personal cars for trips within downtown.

It has provided more exposure to transit services to community members who may not ride the bus.

Provides alternative transportation options for tourists and downtown workers/residents to move around downtown, work to restaurants, tourist spot to tourist spot, residential to work/eat, etc.

11. What have been the primary drawbacks of the downtown circulator?

Responses summarized in Table 39 of report. Verbatim responses are provided here.

None

Free rides prevent establishment of a true circulator

Slow travel speeds on the Main Street portion of the system due to closely spaced mid-block stop locations and traffic signals, despite exclusive right-of-way

Perception that entire system operates slowly

Victim of its own success—now politicians in every part of the city are clamoring for the same level of service, whether or not the ridership demand may justify it.

Decreased ridership on other routes that charge a fare

None

Very limited stops within downtown area.

Still evaluating

Low ridership due to a small downtown

Insufficient capacity: when we have cruise ships dock with thousands of passenger we couldn't possibly handle the loads.

Irregular demand

Funding: A small proportion of funding comes from local business, but the majority of the cost is absorbed by the transit agency (service is provided free of charge).

Convoluted routing: whenever a new sponsor comes on board, there is a request to change the routing so the new sponsor has direct service.

We use a Chance Trolley and the step is high for seniors.

Getting others to ride

Passenger confusion—circulator routing vs. other downtown routes

Equity issue: Same fare as rest of the system but generally shorter trips, arguments for inequity. Circulators beg the question of paying additional fare when we reach the end of the line (terminal) and want to continue trip in the same direction.

Transfer issue: Circulators beg the question of paying additional fare when we reach the end of the line (terminal) and want to continue trip in the same direction.

Limited evening service

No weekend service

None

Not enough ridership and revenues

Low utilization

Frequent utilization without transfer

Costly

Demand is highly variable, depending on the season

Lack of dedicated parking for the circulator

High floor, with lifts instead of ramps

Trolley-style buses expensive to maintain (wood)

Low ridership does not justify cost of operation.

None

Infrequent service

Unimpressive ridership

Very costly to operate (over $1 million annually)

Start-up costs high (vehicle purchase)

High maintenance costs due to frequent stops

Higher spare ratio to maintain reliability

Not as direct

Fast implementation meant no branding—now being resolved

Limited capacity due to the smaller vehicle size (30') of downtown circulator.

Insufficient funding

Infrequent service

Private trolley company operates and serves areas other than those we would like to serve

Funding—it operates with a hefty subsidy from the state

Downtown congestion makes it difficult to maintain headways

Only a seasonal service

Due to budget constraints and downtown street pattern, circulator is a one-way loop—a major drawback.

Additional transfer for many passengers to reach downtown destinations

Difficult to schedule (maintain spacing, provide driver breaks, meet trains within customer expectations)

Staging can be a problem when buses “bunch up” due to the short distance (3 miles round trip) and the number of vehicles in service.

Victim of its own success—other parts of downtown want a “free shuttle” but are unwilling to pay for it.

Low ridership and productivity in terms of passengers per revenue hour

High cost of the type of frequency needed to operate a successful circulator (10 minutes)

Use at times by transients

Maintenance issues (different fuel, electronic message boards, and kiosks)

Popularity led to reductions on other routes first and loss of revenue/ridership, while circulator essentially replaced walking trips

Cost

Congestion and inability to operate reliably

Striking the balance between serving numerous destinations and maintaining a high level of service (speed and frequency)

Homeless people abusing the free service

Long dwell times for outbound buses outside the RFA associated with alighting passengers paying fares or showing passes

Loss of fare revenue in excess of city's contribution for RFA

Incidence of riding in downtown area by homeless people and transients

Encouragement of a lax attitude about paying fares

Light rail does not honor RFA

Capacity (vehicles used for the Downtown Loop are vans)

Hours of operation: only 6:30 a.m.–5:30 p.m.

Frequency (only every 30 minutes)

Ridership very poor when no convention/conferences

Not designed to serve regular transit customer, oriented toward hotel guests, convention goers, and lunch crowd

None

No operating assistance from Business Improvement District, though lots of suggestions/demands for more service(s). A service increase on the Free Mall Ride comes at the expense of service on revenue routes.

Easy travel to restaurant district hurts restaurants in heart of downtown

Express routes lost ridership when diverted to circulator terminals

Complaints from other communities that they should have free shuttles, too

Rising operating costs that makes it more expensive to operate service

Maintaining reliability on congested downtown streets

Slow

Began free, but now charges fare due to budget constraints

Trying to make the service visible and known throughout the downtown community

Keeping it as simple as possible to use

Providing a travel time benefit

Maintaining routing and stop locations

12. Has the changing role of downtown (a shift from central business district to principal activity center with a mix of retail, jobs, and housing) influenced the design and operation of your agency's downtown circulator? If so, please explain.

Responses summarized in Table 40 of report. Verbatim responses are provided here.

Housing in the downtown increases utilization of the downtown circulator.

No. We've always had an active downtown.

Not significantly. Downtown has experienced a growth in residential population and mix of retail activities that have contributed positively to ridership growth.

Definitely—this is not a weekday lunch shuttle only—it is marketed toward and serves a wide range of travel markets. We operate a lot of late night service (until midnight during the week and until 2 a.m. or 3:30 a.m. on Friday and Saturday nights) at the same 10-minute headway to make the service attractive to residents, visitors, tourists, and workers, not just commuters or a lunch crowd.

No

No effect

Our circulator began service with the opening of our new transit mall. The plan was heavily influenced by the business community as we structured the design and service on the transit mall.

Downtown circulator is a streetcar system. Track layout limits operational changes.

Have shifted route on many occasions to increase ridership

No, our downtown hasn't shifted significantly since the implementation of the service.

Yes, we have stops at the main senior living complexes and historic sites.

Yes. In the 1980s/early 1990s, a CBD business association sponsored (i.e., paid for) a true downtown circulator with dedicated vehicles (faux trolleys) and a discreet schedule. As retail disappeared from downtown, so did sponsors and funding for the service gradually diminish until the service was discontinued ~1995. About that time the transit agency implemented a timed transfer, pulse system for all routes and the circulator was created with regular transit coaches.

Yes. The creation of a regional transit center just outside of the downtown core required us to create at least one route that would continually connect downtown to the center. Three hospitals within the range of the circulator needed to be included as well as a couple of low income housing facilities needing access to the transit center and the downtown core.

Yes, we actually now operate a west and east route that serve not only the downtown, but also newer destinations scattered throughout the city (e.g., hospital, school, newer shopping areas, and industrial park).

No

No

Design was solely influenced by destinations of interest (both business and commercial) in downtown area and connectivity to other fixed routes.

Not really. The service is in its 4th year and was designed to connect the State Capitol Campus, downtown, and the Farmers' Market area (includes restaurants, offices, and retail as well as Farmers' Market).

Not really. Our circulator connects the historic downtown to the two close-in regional malls and the major employers and medical facilities. Use has grown as vibrancy of city has increased.

No

Yes. Environment is dynamic—routes need to be continually evaluated and adjusted as needed.

No

No. However, the city plans on a downtown bus circulator using ARRA [American Recovery and Reinvestment Act] and 1/2 penny surtax funds.

No. We find that the business class is the primary user of the system, and the tourist sector is the next primary user. Housing has not resulted in significant ridership since the downtown residents work during the day. The service is not practical on game nights because of gridlocked traffic; it is often faster to walk to the venue than ride. Also, you can't teach the infrequent visitor to downtown how to use the system.

Yes, it has been important to try and link all the major trip generators.

No

The routings have been extended to connect with other major destinations such as a major university outside of the downtown area.

To date, the city is undertaking a study to determine an optimal location for a downtown multimodal center. It is the intent to combine this facility with some retail etc.; so, depending on the type of development and the location, the downtown trolley route would need to be revisited.

Not really, but over the years we have adjusted stops to incorporate additional destinations; e.g., a park that was recently renovated as an active children's attraction, opening of a new wing of our art museum, etc.

No. We have received some requests from an older neighborhood bordering downtown to add circulator service on weekends to replace the loop removed from the other bus routes. Budget constraints and low evening weekday ridership are the main reasons for not adding that service to date.

The route has remained the same since its inception in 1992 serving what was once the CBD but has also become a principal activity center and, as such, the hours of the circulator were extended until 11:15 p.m.

Yes, we have redesigned the route to accommodate new downtown condos.

As more residents have moved into the downtown core, our agency is looking at expanding the system to connect more nearby residential neighborhoods reducing the need for additional parking.

No

Absolutely. While the traditional CBD continues to thrive, new major activity centers less than a mile from downtown have emerged. The downtown circulator is designed to connect these areas.

No

No. The downtown circulator was designed to strengthen the downtown area by providing free and easy circulation.

There have been minor adjustments to the Ride Free Area over the years, mainly due to the opening of the downtown Transit Tunnel in 1990.

Not yet, but it will when the future modern streetcar line opens. The modern streetcar will serve as a downtown circulator with extended hours of operation and improved frequency.

No

The basic design and operation has not significantly changed since approximately 1991.

Yes. Introduction of peak headways during noon hour (same level as classic a.m. and p.m. peaks) was needed to handle loads. This does not fit with earlier statements that the downtown circulator would save operating costs by diverting suburban buses into the peripheral stations. Similarly, night and weekend service had to be expanded for loads.

Yes, it has to a certain extent, but a shrinking budget did not always allow us to respond to the changing nature of downtown as quickly as we would like. However, in the past few years, we have added resources to service entertainment venues and employment centers. We have also extended the hours of operation on selected routes.

No

Yes, the transit agency made an effort to include emerging residential areas in recent route changes. The transit agency is nearing the completion of a streetcar study that would provide additional downtown circulation and improve economic development to connect live, work, retail in the area.

13. If you could change one aspect in the process of designing and implementing this program, what would you change?

Responses summarized in Table 41 of report. Verbatim responses are provided here.

None

Require dedicated right-of-way wherever possible

Seek political support to insure that city engineers do not hamper the systems' operational effectiveness.

More specific criteria on performance levels from the very beginning—our sometimes ad-hoc decision making has led to difficulty as the system has matured.

More specific criteria on governance from the very beginning—our lack of governance structure and sometimes ad-hoc decision making has led to difficulty as the system has matured.

Develop a fare free zone in the area of the downtown circulator so that there is no competition between regular routes and winter shuttle routes.

Expanded coverage area

Agree on clear performance targets for the circulator with stakeholders

Get agreement that modifications might be needed based on ridership, budget, and traffic conditions.

Greater emphasis on an operating plan that would allow an easier transition to extend travel markets beyond the central business districts.

Change to political process

I would remove it altogether. Most of the links provided by the service are duplications of other regular services. The one segment that is not covered by a conventional route soon will be, pending budget approval.

We have just (January 2010) reduced the fare from $1.50 to 25 cents. Seniors 65 and older ride for free and the majority using this service is seniors. However, we want to try and get business workers to use it to get to a restaurant or to get to the other end of town quickly. We believe just having to put a quarter in the fare box will help. We saw a slight increase in passengers in January. Stay tuned!

The transit agency is about to start construction on an off-street transit center in the CBD. When finished, bus routes will be assigned to dedicated platforms. I'm hoping that all buses looping through downtown will be able to make a stop at a common platform in the center before proceeding on. This will reduce customer confusion.

Give the circulator stops in downtown a unique space—similar to streetcar stations—to set them apart from other routes that pass through downtown.

Type and number of vehicles and drivers available for the service, which would in turn allow for expanded evening and weekend service.

Eliminate one-way streets

Should be supported by businesses and employment centers to make the service free of charge

Not sure

I think we did this right given the limitations of the service area. The service began with a dedicated parking area but the site has now been developed into state offices. The service is free, runs frequently, has simple routes, and uses a comfortable and reliable vehicle.

Improve vehicles; quieter, more comfortable.

To improve ability to forecast use of the circulator. Our survey indicated high interest and likelihood of use, but this was not what happened.

Level of priority given to transit from a funding and parking pricing standpoint.

I'd get an iron-clad agreement for long-term operating support from the business community.

It might be to split the service; however, while some of the stakeholders would like more direct service from one point to the other, other stakeholders would then lose their connections.

A little more time to develop the branding so that everything was in place at the beginning of the service.

Stronger integration and linkage between parking management plan and the circulator operation plan from all aspects including conceptual design, marketing, service planning, and implementation.

The best implementation of service would be based on a fully funded public transit model which intends to serve the most number of people and services; however, when funding some contractual services, different funding problems can occur due to Charter Regulations and the competing need to fund public service versus private service interests.

I don't think we'd change anything about the design or implementation of it. The challenge is in funding it.

Getting more public input on the route and schedule before committing to and implementing the service.

The way it is funded, we would make sure there was buy-in as well as a financial report from downtown merchants.

Don't overdo the community outreach. Moderate it a bit. We did too much and got to "paralysis by analysis."

As I was not involved in the original planning or design of the facility, I can't really answer that question. My understanding is that the city initially started a free circulator in shared traffic as a demonstration project. Then the agency developed and designed a fixed guideway route with one segment a contra-flow lane. Some of our other fixed routes also use a small segment of the guideway to connect to our central station, pulling additional buses out of the general use lanes in the CBD.

Perhaps using a rubber-tired "vintage"-style-themed trolley instead of the 29-foot Optima buses we used. Although our buses were branded in a whimsical, fun, eye-catching way, many critics felt the service would be even more popular with the tourists if we used trolley themed vehicles.

Make the routings a little leaner. They are too indirect, attempting to serve multiple constituencies within the CBD.

As always, budget was a limiting factor in level of service that is provided. More funding could have provided better service.

Eliminate the Ride Free Area. It is increasingly viewed by planning staffs as an anachronism, because it does not make a major contribution to the efficient movement of transit through the downtown area, nor is it clear that it encourages transit ridership in downtown over what otherwise would occur since over half of the transit agency's riders use various pre-paid passes. Other measures such as deployment of low-floor buses, streamlining routings of groups of routes to provide more straightforward circulation paths, and promoting these paths through better marketing materials, continued marketing of pre-paid passes, and transit-priority measures such as restricting automobile traffic on major transit arterials such as Third Avenue in combination are more effective at achieving the goals of efficient transit operation and increased market share in downtown.

Improve frequency to 15 minutes (however, this is not possible given existing funding sources).

Probably no changes to the routing, but may operate fewer hours. Service currently operates from 7 a.m. to 11 p.m. Monday–Friday and 3 p.m. to 11 p.m. on Saturdays. I think we might roll back the standard operating hours to something like 7 a.m. to 6 p.m., Monday–Friday, and then operate evening or weekend hours as necessary to serve major conventions.

I am not aware of any aspect that I would change.

I wasn't here when it was done, but have talked with those who were and have read the studies. Operating and Maintenance costs were not well forecasted. These expenses cut into service for the rest of the system.

The downtown consists of 6 weekday and 3 weekend routes and generates approximately 7.5 million trips per year. The system has evolved over the years from its inception in 1985 and had one major restructuring of its service routes in the late 1990s that revamped the entire system, introduced new routes and modified others to target the greatest number of riders. One aspect I would change in the early process of designing and implementing the downtown circulator would be to work in closer collaboration with our regional partner to ensure that the city DOT's role and responsibility as the primary provider of downtown mobility dovetailed into the larger regional picture.

If the service could operate on a dedicated lane or so mething to make it faster and more convenient

If the service could have signal priority/or something to make it faster and more convenient.

Improve the communication of the benefits with all downtown stakeholders If the industry could provide dollar values for the service in comparison with various downtowns, the increase in circulator service provides "x" economic benefit, "x" value for increased connectivity and productivity, or a value to support increased density by bringing more residents, work, and fun to downtown.

14. Please describe any "lessons learned" that would benefit other transit agencies that are considering implementation of a downtown circulator.

Responses summarized in Table 42 of report. Verbatim responses are provided here.

The downtown circulator is the face of your transit system to citizens and visitors. Friendly drivers, attractive vehicles (such as trolleys), open air sides (weather permitting), and frequent headways are all important for a successful circulator.

Pay close attention to station spacing and traffic signal coordination issues.

Consider the use of girder rail and concrete only in all in-street rail, where travel lanes are shared with other travel modes. In some areas a top coat of asphalt was laid over the concrete track bed that has resulted in safety- and maintenance-related issues.

We would recommend the use of ADA accessible ramps instead of mechanical lifts at station platforms if low-floor vehicles are not an option. Maintenance of mechanical lifts is expensive and disruptive to patrons with disabilities when failures occur.

Try to use passing tracks as an inexpensive alternative to double track or in areas where only single track right-of-way may be available.

Set performance criteria and governance structures up front.

Do not compromise on your headway performance and offer it for the entire span—it only confuses people and loses choice riders for them to know to expect longer waits at different points in the span. Protect this at all costs and cut your span or route length before considering any lengthening of headway. The 10-minute headway is a sweet spot and draws in choice riders who would otherwise not choose transit; try to meet these criteria even though it is expensive.

Build a strong brand with support from the business community

We actually set up a separate nonprofit corporation with the BIDs [Business Improvement Districts] and convention/tourism bureau on the board to brand the service and use the marketing expertise of these established groups.

Buy unique, distinctive, high-quality buses and paint them to stand out visually—we bought Van Hools, which are a rarity in the U.S. and people love them.

Implement circulators as part of an overall downtown development, parking and circulation plan.

Work closely with downtown business associations and stakeholders to make sure that the service is designed to meet their needs.

Work closely with downtown business associations and stakeholders to make sure that there are clear performance targets.

Work closely with downtown business associations and stakeholders to make sure that adjustments could be made in the future depending on performance levels and budget availability. In our case, downtown interests have strong ownership in our circulator service and fare zone, so changes have been carefully and fully discussed before implementation.

Work closely with downtown business associations and stakeholders to make sure that downtown interests have strong ownership in our circulator service and fare zone, so changes have been carefully and fully discussed before implementation.

If planners say it will not work or ridership will be low listen....

Make sure that the demand for the service is real and not just a public relations exercise for the businesses involved.

If the service will be "free," get the full cost of the service paid upfront from sponsors.

Linking to historic sites

Having frequent service during lunch hours to appeal to workers going to lunch. It needs to have frequent service.

1. The faux trolley buses operated on the downtown circulator became prohibitively expensive to maintain in latter years. This isn't New Orleans. We can't make our own parts. Every part was a special order and only specific maintenance personnel had the knowledge base to work on them.

2. Business associations have high expectations, low budgets, and short attention spans.

3. Competition with other modes can limit ridership. Our city is a 20 minute town; i.e., most of the suburbs are within a 20 minute ride and, once in it, most of the downtown CBD is within a 20 minute walk. If the bus route is too circuitous and the headway lengthy (say >15 minutes) as a result, people will walk, and ridership won't develop, no matter what the fare is. The fare was $0.10 and ridership was still dismal.

The loops shouldn't be too big—no more than 20 to 25 minutes. Keep it as simple as possible—avoid a lot of side street deviations

Trips should operate frequently enough and consistently so customers do not have to refer to schedule.

Try to intersect with other through routes and easy to transfer locations.

Think a lot about the numbering or naming. If it is bi-directional, consider another number or name for the opposite direction.

Try to identify key destinations in the route description.

Anticipate what a new customer to the service needs to know before they risk boarding your bus.

Get local support from businesses and attractions to help fund service.

A few years ago, the agency offered a "corresponding" Lunch Trolley along an abbreviated route in the same downtown area. This was scrapped on account of a lack of utilization, and likely because of tight proximity from point A to point B.

Using a "real," heavy-duty bus with a unique and interesting paint and graphics scheme is a much better direction than using "trolley-replica" vehicles. This was a very good decision that our customers appreciate. The vehicles are reliable, low-maintenance, accessible (low-floor), and comfortable. They can also be used elsewhere in the system if necessary.

Free fare was also a good choice. High ridership is the success measure for a downtown circulator.

Dedicated parking certainly helps

Partnerships are both easy and essential to success.

Make it simple. Good route descriptions, route maps, and simple fare info.

We started with a very small scale in the area and times that were thought to be most useful for success. As noted, the ridership did not materialize, so although the service was not a success, the cost exposure was relatively small. On the other hand, this leaves some room for debate about whether a more expensive approach (unique vehicle and marketing blitz) may have led to a better outcome.

You must be reactive to your environment in order to maximize the efficiency of your service.

The circulator will not be used unless the service is frequent and convenient.

Make it free. Your ridership will be greater and the little revenue associated with a modest fare isn't worth the cost to manage the fare boxes.

Also, meet with your business community supporters quarterly to discuss the operations and changes to the routing, but maintain your role as the expert in the design of efficient transit service.

Bring the various stakeholders together when service changes are made to review the reasons behind them and build consensus.

Service needs to definitely be branded to stand out from the rest of the transit service. This is extremely important if the potential users are tourists or visitors to a city who would not be familiar with transit.

Also, it is extremely important to have special training for the drivers of the service to be extra helpful to the customers as they are probably not familiar with the local community or bus system.

Strong community support. This type of implementation should be jointly developed and supported by the city Planning Staff, resident community, and business stakeholders, in addition to a transit agency.

The downtown circulator shall be a vital mobility/land use interface element in the overall downtown development plan.

In order to maximize service area and delivery, coordinate with all downtown employers, business associations, chambers, downtown residents, and so on to ensure the circulator service is all encompassing.

Connectivity to the entire public transit system

A subsidy is required to operate; circulators don't make money.

We made the shuttle free, and would not change the route, resisting outside pressure to charge a fare.

We resisted outside pressure to change the route in ways that from a planning perspective did not make sense.

Do not try to be all things to all people. This tends to spread the service too thinly and make it lose focus on any particular mission (i.e., is it supposed to be primarily for employment circulation, housing, noon time lunch shuttle, etc.).

Involving the local government in the planning process has been invaluable. The city's land development code and land use regulations are supportive of transit and mobility, which has allowed the Central Business District to grow and thrive along with the success of our circulator.

Using some portions of the fixed guideway for regular fixed route service has increased our revenue miles on the fixed guideway segment, as well as removed bus traffic from the general use lanes within some parts of the CBD. This was not something originally thought of when first developing the downtown circulator route and would be something to consider in planning new routes.

Because the circulator is free the service is very popular within the CBD.

Funding for the operations is provided by the city and paid for through parking revenues and tax increment funds from the downtown community redevelopment agency.

New transit users

Appeals to downtown visitors and merchants

Popularity led to reductions on other routes first and loss of revenue/ridership, while circulator essentially replaced walking trips.

Perhaps using a rubber-tired "vintage"-style-themed trolley instead of the 29-foot Optima buses we used. Although our buses were branded in a whimsical, fun, eye-catching way, many critics felt the service would be even more popular with the tourists if we used trolley themed vehicles.

1) You can't please everyone all of the time.

2) Must have a stable, reliable funding source (in our case, the parking tax provides 75% of the operating cost). You can't make this work based on voluntary contributions.

3) Set aside a good amount for marketing. Service needs to be highly differentiated from other transit

Double the recovery/layover time you think you need.

Most important lesson learned was to enlist a diverse group of "stakeholders" in the design of the service. Government, business, retail, students, etc., were involved which resulted in better routing and produced a sense of ownership or "buy-in" of the circulator.

The existence of a Ride Free Area in downtown has encouraged other local cities to ask the transit agency to establish RFAs in their downtown areas, and several studies have been done to look at setting up one or more additional RFAs. However, the advent of a fiscal crisis has led to new questions about the effectiveness of a RFA and the amount of fare revenue lost. At a time when multiple urban centers have developed outside downtown, the existence of a RFA in downtown seems very downtown-centric. However, the RFA remains politically popular in some quarters as it has been part of the local transit landscape for such a long time, and it remains to be seen whether concerns about increasing system revenues to close the transit budget deficit will result in reconsideration of the RFA.

Do not duplicate existing fixed route bus service. Circulators should only be implemented to fill in "gaps" in the transit system.

What is the purpose or target market for the service? In our case, it was to serve the convention and visitors market. Try to connect as many "dots" as possible that would serve as destinations for the customers, but in a short route that would allow for good frequency.

Design a short route that would allow for good frequency.

Service frequency should be somewhere between every 10 and 15 minutes, 20 minutes at the most.

Branding of the service and the buses to stand out from the regular transit fleet is a must, especially if the target market is non-transit users.

A buy-in from the Union to allow for a special selection of drivers that are trained as Community Ambassadors/ Visitor guides. Again, this is important if going for the convention/tourist market rather than normal transit users.

Free fare is nice, or some small amount such as 25 or 50 cents per ride.

Of course, this requires some dedicated funding to support the service.

It also helps to have supportive partners that are willing to lobby for the service; possibly a downtown business association, convention bureau, or some level of government.

Much of the success of our Downtown Waterfront Shuttle is because there was already a large potential customer base in place. It is probably not realistic to expect that "if you build it they will come"; i.e., that a new circulator will bring customers to a struggling downtown.

One factor that has made our shuttle very popular and well-known is the use of clean and quiet battery-electric shuttles. However, an agency considering a similar technology should understand the special maintenance needs to keep a specialized fleet such as this in operation.

Carefully define infrastructure responsibilities and require that some percentage of the operating costs and/or infrastructure costs be reimbursed from either the municipality or a business improvement district. Not all of the issues were anticipated in Denver.

A positive lesson learned in our case is that having the sidewalks cleaned and maintained by the business improvement district, along with a special police patrol provided by the BID, has contributed to the success of the downtown circulator.

Take sufficient time to coordinate with other agencies/municipalities to be clear on the role of the circulator system.

Get feedback from large employers, visitors bureau, convention centers, hotels, etc., to see what their needs are (to avoid duplication if possible with other shuttle operators) to allow you to plan effectively for span of service, route alignment, connections to regional service, etc.

Also, build in a regular cycle of reviewing your downtown circulator service to ensure that you are capturing changes to the downtown landscape.

Exposure to transit for non-riders

Explore strategies to make circulator faster and thus more convenient

Take time to think about fare

Public participation, public participation, public participation; the city, downtown stakeholders, and general public need to own a stake in the downtown circulator. Communication of the public process to all, cannot please all, but provide the information to clarify how the decisions were made.

BEGINNINGS

15. What was the PRIMARY reason for implementing a downtown circulator?

Transit agency desire to provide better connections within downtown	32.6%	14
Request from downtown businesses/employers or TMA	20.9%	9
Elected officials encouraged or dictated implementation	14.0%	6
Downtown transit center moved to new location; need to continue to serve heart of downtown	7.0%	3
Request from downtown convention center or hotels	2.3%	1
Opportunity for public-private partnership with private-sector financing	2.3%	1
New rail service required connection to downtown	2.3%	1
Other	18.6%	8

Other includes: (1) our circulator was first instituted by our then mayor, who saw something similar in Phoenix, at a time when our new convention center and several new hotels were opening. (2) To increase the transit options and augment the services provided by the regional transit providers. (3) The primary reason, as far as I know, was to provide a method of transportation in the downtown area, and to utilize a trolley to give a nostalgic feel. It was a number of years that it was revised to strengthen connections within downtown. (4) The county wanted a service to transport its employees from remote parking facilities. The county pays for the service under a contract with the city. (5) A desire of the state department of transportation to improve the connection between the train station, downtown business center, and parking. Parking is limited at the rail station with much parking overflowing to lots several blocks from the station. The circulator connects these lots to the station but also connects to the heart of downtown. (6) Two were requests by employers/businesses/TMAs [transportation management association]. The third was from the city. (7) Our primary reason was actually a combination of the convention center/hotel request and the elected officials' dictation. (8) Opportunity to assume a single route from the regional provider.

16. Who are the stakeholders in the downtown circulator? In other words, who has played an active role in bringing this concept to implementation and in continuing to support it (check all that apply)?

Transit agency	90.7%	39
City elected officials	72.1%	31
Downtown businesses/employers	65.1%	28
Downtown hotels	32.6%	14
Downtown convention center	27.9%	12
Transportation Management Association	14.0%	6
Other	30.2%	13

Other includes: (1) citizens; (2) resorts and the Regional Planning Agency; (3) regional hospitals; (4) Convention and Visitors Bureau contributed funding toward the purchase of the trolley utilized on the route; however, they are not active stakeholders; (5) state government and state agencies have been strong partners. The Farmers' Market, Chamber of Commerce, Children's Museum, and Port are other partners. (6) MPO, state DOT, Economic Development Agencies, Convention and Visitors Bureau; (7) air quality district, major employer (university); (8) county; (9) educational institutions; (10) university; (11) city and also county; (12) involvement of this diverse mix

of stakeholders is what makes the circulator successful; (13) commuters whose routes do not traverse the length of downtown.

17. What are the main purposes or goals of the downtown circulator (check all that apply)?

Improve general mobility throughout the downtown area	88.4%	38
Encourage public transit use by employees	62.8%	27
Provide a way to get around for convention goers	58.1%	25
Encourage public transit use by shoppers	55.8%	24
Provide a way to get around for visitors in downtown hotels	55.8%	24
Support a "park once" concept, where the circulator connects parking and downtown connections	55.8%	24
Encourage downtown revitalization	48.8%	21
Serve residential areas in or near downtown	46.5%	20
Connect a rail station to the heart of downtown	32.6%	14
Connect a new transit center to the heart of downtown	18.6%	8
Other	11.6%	5

Other includes: (1) we also connect to several historic sites in the downtown area and plan to add one new historic attraction stop in the summer. (2) Low fares (fare subsidized by the city). (3) Shuttle cruise ship passengers to shopping districts and other attractions in downtown. (4) Connect university with downtown businesses and resort/casinos. (5) Rail station in one city's case.

18. Who has been the circulator's primary "champion?"

Agency general manager	34.9%	15
Downtown interests (employers, convention center, hotels, partnership)	20.5%	8
City elected officials	16.3%	7
Others in transit agency	9.3%	5
Multiple champions	7.0%	3
TMA	4.7%	2
Other	4.7%	2

Other includes: bus operators, county officials.

MARKETS

19. What is the primary market for the downtown circulator?

Employees	34.9%	15
Tourists/visitors	25.6%	11
Multiple markets	16.3%	7
Downtown residents	7.0%	3
Shoppers	4.7%	2

Other	9.3%	5

Other includes: (1) school children, (2) residents throughout this community of about 35,000, (3) passengers transferring at the transit center, (4) primary utilization is for individuals running errands, and (5) day laborers.

20. Does the downtown circulator also serve other markets (check all that apply)?

Downtown residents	68.3%	28
Tourists	48.8%	20
Shoppers	41.5%	17
Employees	34.1%	14
No—sole focus is on the primary market	4.9%	2
Other	24.4%	10

Other includes: (1) Serves all markets; (2) serves not only employees but shoppers, residents, and tourists. People just need to realize it exists; (3) school children; (4) downtown is the county seat as well as heart of city government, the primary employers. Downtown is currently completing five new housing starts so this is a potential new market; (5) other community residents; (6) people serving jury duty; (7) not a great number of downtown resident users, but they do use the system; (8) people with business (attorneys and clients) at one of the three courthouses clustered at the north end of downtown; (9) students and faculty at the local university; and (10) varies by city.

21. Has the market for the downtown circulator changed over the years?

Yes	46.5%	20
No	53.5%	23

22. Has the route of the circulator been changed to include locations that are important to new markets (check all that apply)?

Yes, for downtown residential areas	31.8%	7
Yes, for employment sites	31.8%	7
Yes, for hotels/convention centers	31.8%	7
Yes, for retail sites	27.3%	6
No—new markets are incidental to the primary market	27.3%	6
Yes, changed to serve rail station	18.2%	4
Yes, changed to serve new transit center	4.5%	1
Other	18.2%	4

Other includes: (1) will be changed to include new historic attraction about 5 minutes outside the downtown. (2) The original route was very circuitous and confusing and took in residential, retail, employment, and tourist spots. As a result, it was excessively long. When the TMA/BID assumed operation, we focused on the tourist/visitor market and designed a simple, shorter loop, from our waterfront to our art museum, passing our convention center and several hotels. Aside from minor tweaks, that route continues today. In 2009, our zoo and children's museum, located west of the art museum, asked to participate and they were added, resulting in increased ridership. (3) Educational institutions. (4) Minor changes have been made to the Ride Free Area boundaries in downtown to include the Downtown Transit Tunnel. However, in 2009 a regional transit agency decided that fares would be

charged on its new light rail line in the tunnel. The light rail line began revenue operation in July 2009, and shares the tunnel with one Regional Express route as well as transit agency bus routes.

23. Describe the design of the downtown circulator.

A single loop route	31.0%	13
Combination of different types of routes	23.8%	10
Multiple loop routes	16.7%	7
A single linear route	11.9%	5
Multiple linear routes	11.9%	5
A single flexible route	0.0%	0
Multiple flexible routes	0.0%	0
Other	4.8%	2

Other includes: (1) two cities are 1-way loops (of sorts). The third city is a bi-directional detour/re-route of a single linear route through the center of the CBD (on what had been a routing that skirted the CBD). Two are free; one is regular full/reduced fare. (2) It is a downtown ride-free zone covering the downtown core area as well as the Downtown Transit Tunnel.

24. Who designed the routing of the downtown circulator?

Transit agency	81.0%	34
City	31.0%	13
Private sector entity	16.7%	7
TMA	9.5%	4
Other	16.7%	7

Other includes: (1) County. (2) Designed by default of existing services; added to over time. (3) The single linear route is patterned after a proposed streetcar alignment designed by a consultant. It seeks to replicate the best parts of the plan such as unique vehicles, frequent service, and direct routing. (4) Significant input from Rail Runner Express (commuter rail) staff and Downtown Action Team (business coalition). (5) University. (6) The boundaries were negotiated with the city. Except for inclusion of the Downtown Transit Tunnel in 1990, the transit agency has been resistant to expanding the Ride Free Area due to concerns over fare revenue loss in lieu of an increased financial contribution from the city. (7) Not sure. It was a collaborative process involving all of the above.

25. Who decides on any proposed changes to the routing of the downtown circulator?

Transit agency	76.2%	32
City	33.3%	14
Private sector entity	4.8%	2
TMA	4.8%	2
Other	7.1%	3

Other includes: (1) County; (2) initiated by transit agency through a community review/input process; (3) city or county, depending on jurisdiction

ADMINISTRATION

26. Who is responsible for day-to-day operation of the downtown circulator? If operation is contracted, consider the entity that oversees the contract as the responsible entity.

Transit agency	76.2%	32
City	9.5%	4
Private sector entity	4.8%	2
TMA	2.4%	1
Other	7.1%	3

Other includes: (1) County; (2) contract with county transit entity; (3) transit agency or TMA, depending on the city.

27. Describe the nature of the interaction with the transit agency regarding the downtown circulator.

Cooperation—contact as needed	50.0%	4
Close cooperation—frequent contact (at least weekly)	37.5%	3
Neutral—the circulator is viewed as a separate entity	12.5%	1
Hostility	0.0%	0

28. How is the operation of the downtown circulator funded?

Transit agency pays all costs	40.5%	17
Transit agency splits costs with private sector	16.7%	7
Transit agency splits costs with city/other public entity	14.3%	6
City pays all costs	11.9%	5
Grant to city specifically for the circulator	4.8%	2
Grant to transit agency specifically for the circulator	2.4%	1
City splits costs with private sector	2.4%	1
Other	23.8%	10

Other includes: (1) County funds and grants; (2) city subsidizes the fares; (3) federal and state operating grants help pay for all our transit services. Local share is contributed by our county and by all our municipalities. The city is one of the municipalities that pays local share for all our service that includes the downtown route; (4) private sector subsidizes fares; (5) county pays all; (6) state grant to TMA; transit agency contributed to the recent expansion of the route; (7) initially funded with CMAQ, with the intention of a public-private partnership when CMAQ ended. University, city, and county contributed and one casino, but combined subsidy from other sources never exceeded 30% and completely ended in 2009; (8) two are paid for with parking lot district funding (they are also fare free). For the other, a capital grant was diverted from the city to the county to buy "special" buses. After that, the transit agency pays all costs; (9) state DOT covers the cost as part of the area transit service. There is not a specific grant or line item in the budget that funds our circulator service; (10) service is operated by private contractor under contract to the city. The city receives partial funding from the MPO.

29. Which private sector entity contributes to the cost of the downtown circulator (check all that apply)?

Downtown businesses or business improvement districts	50.0%	5
TMA	10.0%	1
Tourism organization	10.0%	1
Convention center	0.0%	0
Hotels	0.0%	0
Other	30.0%	3

Other includes: (1) Ski resort. (2) The city utilizes a variety of funding sources for the transit system, and the circulator is one route of the six operated. Funds include local share of the county-wide sales tax for transit, bus shelter revenue, private development revenue, fares, and City General Fund support. (3) Transit advertising.

30. Does the transit agency use federal funds for the cost of the downtown circulator?

Yes	44.4%	16
No	50.0%	18
Not sure	5.6%	2

OPERATION

31. What type of vehicle is used to provide downtown circulator service?

Rubber-tired trolley	29.3%	12
Transit bus 30 feet or larger	17.1%	7
Transit bus under 30 feet	17.1%	7
Mix of vehicles	17.1%	7
Electric or electric-hybrid vehicle	7.3%	3
Cutaway	2.4%	1
Steel-wheel trolley	2.4%	1
Van	2.4%	1
Other	4.9%	2

Other includes: (1) Historic streetcar, (2) single-car light rail vehicle.

32. Are the downtown circulator vehicles specially branded?

Yes	63.4%	26
No—same as all transit vehicles	36.6%	15

33. Who purchases the vehicles?

Transit agency	78.0%	32
City	9.8%	4

Other	12.2%	5

Other includes: (1) our contractor, (2) county, (3) metropolitan planning organization, (4) vehicles purchased by student government for weekend safe ride shuttle, and (5) transit agency or TMA.

34. Who maintains the vehicles?

Transit agency	65.9%	27
Contractor	24.4%	10
City	4.9%	2
Other	4.9%	2

Other includes: (1) county, (2) county or contractor.

35. Please enter the start and end times and headway (how often buses run) for service on the downtown circulator for weekday service.

Responses summarized in Table 25 of report. Verbatim responses are provided here.

5:48 a.m. to 7:08 p.m.	20
6:00 a.m. to 3:00 a.m.	30
6:00 a.m. to 11:00 p.m.	10
7:00 a.m. to 12:00 a.m.	10
8:00 a.m. to 5:50 p.m.	20 to 30
4:45 a.m. to 1:20 a.m.	10
12:06 p.m. to 5:30 p.m.	30
8:00 a.m. to 3:00 p.m.	60
10:30 a.m. to 5:03 p.m.	40
9:05 a.m. to 2:45 a.m.	25
8:30 a.m. to 11:30 p.m.	35
5:38 a.m. to 10:27 p.m.	30
5:00 a.m. to 9:00 p.m.	30
5:30 a.m. to 6:30 p.m.	
6:50 a.m. to 5:40 p.m.	15
7:00 a.m. to 6:00 p.m.	
6:42 a.m. to 7:09 p.m.	12
9:20 a.m. to 6:30 p.m.	15
11:00 a.m. to 2:00 p.m.	12
8:00 a.m. to 9:00 p.m.	20
6:30 a.m. to 6:20 p.m.	10
6:30 a.m. to 6:30 p.m.	8
5:54 a.m. to 7:45 p.m.	15
6:10 a.m. to 9:50 p.m.	20
5:30 a.m. to 12:41 a.m.	10 to 15

10:00 a.m. to 5:00 p.m.	15
10:00 a.m. to 6:00 p.m.	12
6:30 a.m. to 11:00 p.m.	6
6:00 a.m. to 6:00 p.m.	10
6:00 a.m. to 9:50 p.m.	7 to 10
7:00 a.m. to 7:00 p.m.	15 to 20
6:00 a.m. to 11:00 p.m.	10
7:00 a.m. to 7:00 p.m.	10
7:00 a.m. to 7:00 p.m.	10
5:30 a.m. to 8:00 p.m.	30
6:27 a.m. to 6:14 p.m.	12
5:00 a.m. to 7:00 p.m.	12
6:30 a.m. to 5:30 p.m.	30
7:00 a.m. to 10:40 p.m.	12 to 15
9:00 a.m. to 6:00 p.m.	15 to 30
9:00 a.m. to 6:00 p.m.	10 to 15
5:01 a.m. to 1:35 a.m.	1.25 to 3.75
6:00 a.m. to 7:00 p.m.	5 to 8
6:00 a.m. to 8:00 p.m.	15
7:00 a.m. to 12:15 a.m.	7 to 10

36. Please enter the start and end times and headway (how often buses run) for service on the downtown circulator for Saturday service.

Responses summarized in Table 25 of report. Verbatim responses are provided here

8:00 a.m. to 3:00 a.m.	45
9:30 a.m. to 1:00 a.m.	10
7:00 a.m. to 3:30 a.m.	10
8:00 a.m. to 5:50 p.m.	20 to 30
5:00 a.m. to 1:15 a.m.	12
10:30 a.m. to 5:03 p.m.	40
9:05 a.m. to 3:05 a.m.	60
6:30 a.m. to 11:30 p.m.	
9:45 a.m. to 6:07 p.m.	60
8:45 a.m. to 6:10 p.m.	60
6:50 a.m. to 5:40 p.m.	15
9:00 a.m. to 5:00 p.m.	10
9:20 a.m. to 6:30 p.m.	15
8:00 a.m. to 9:00 p.m.	20
10:54 a.m. to 7:45 p.m.	15
5:30 a.m. to 12:41 a.m.	10 to 15

10:00 a.m. to 5:00 p.m.	15
10:00 a.m. to 6:00 p.m.	12
9:30 a.m. to 11:00 p.m.	7
10:00 a.m. to 11:50 p.m.	10
7:00 a.m. to 7:00 p.m.	15 to 20
8:00 a.m. to 12:00 a.m.	10
5:30 p.m. to 11:59 p.m.	10
7:00 a.m. to 7:00 p.m.	30
5:00 a.m. to 7:00 p.m.	12
3:00 p.m. to 10:40 p.m.	12 to 15
9:00 a.m. to 6:00 p.m.	15 to 30
9:00 a.m. to 6:00 p.m.	10 to 15
5:25 a.m. to 1:35 a.m.	3.75
6:30 a.m. to 5:00 p.m.	20
10:00 a.m. to 6:00 p.m.	20
9:00 a.m. to 12:15 a.m.	7 to 10

37. Please enter the start and end times and headway (how often buses run) for service on the downtown circulator for Sunday service.

Responses summarized in Table 25 of report. Verbatim responses are provided here

2:30 p.m. to 11:30 p.m.	60
10:00 a.m. to 6:00 p.m.	10
7:00 a.m. to 12:00 a.m.	10
8:00 a.m. to 5:50 p.m.	20 to 30
5:30 a.m. to 1:00 a.m.	15
10:30 a.m. to 5:03 p.m.	40
11:50 a.m. to 6:00 p.m.	
9:45 a.m. to 6:07 p.m.	60
8:45 a.m. to 6:10 p.m.	
8:00 a.m. to 7:00 p.m.	20
10:54 a.m. to 4:45 p.m.	15
5:30 a.m. to 12:41 a.m.	10 to 15
10:00 a.m. to 5:00 p.m.	15
10:00 a.m. to 6:00 p.m.	12
9:30 a.m. to 8:15 p.m.	7
10:00 a.m. to 9:50 p.m.	10
7:00 a.m. to 7:00 p.m.	15 to 20
10:00 a.m. to 10:00 p.m.	10
5:00 a.m. to 7:00 p.m.	12
9:00 a.m. to 6:00 p.m.	15 to 30

9:00 a.m. to 6:00 p.m.	10 to 15
6:26 a.m. to 1:35 a.m.	3.75
10:00 a.m. to 5:00 p.m.	20
9:00 a.m. to 12:15 a.m.	7 to 10

38. Do you charge a fare for the downtown circulator?

Yes	42.5%	17
No	57.5%	23

39. What is the cash fare for the downtown circulator?

Responses summarized in Table 27 of report. Verbatim responses are provided here

Free
Free
$1.00
$1.00
Free
Free
Free
$0.20
Free
$0.25
Free
$0.75
$0.75
NA
Free
$1.50
Free
NA
Free
$2.00
Free
Free
$0.75
Free
Free
$0.25
$2.00
Free

$0.25

Free

Free

Free

$1.25

Free

Free

Free

Free

$0.25

Free

$0.25

$0.50

$1.10

40. What fare media are accepted on the downtown circulator (check all that apply)?

Cash	94.4%	17
Transit agency monthly passes	77.8%	14
Transit agency day passes	66.7%	12
Transit agency other passes	66.7%	12
Transit agency transfers	44.4%	8
Transfers within the circulator system	33.3%	6
Downtown circulator passes	22.2%	4
Tokens	22.2%	4
Other	27.8%	5

Other includes: (1) we also offer an all-day circulator pass and an all-day family circulator pass. (2) Smart card–electronic fare media/debit. (3) Local transit tickets and the county-wide transit pass. (4) Regional fare card with built-in electronic transfer or electronic monthly pass. (5) Sometimes a pre-paid fare agreement will be worked out for a particular convention and their convention ID will serve as a transit pass.

41. Has introduction or revision of the downtown circulator allowed the transit agency to make changes to other routes?

Yes	32.5%	13
No	67.5%	27

42. Please describe the changes to other routes.

Other routes are timed to tie into the downtown circulator.

The transit agency opened two bus transfer facilities on either end of the initial main street line in 1993. This resulted in the re-routing of a majority of bus routes to each center away from the heart of the CBD. Other minor route modifications have been made over the years as two additional lines were added.

We took over one transit authority route completely and eliminated one shorter, low-performing authority route and replaced it with a circulator.

Restructured duplicated routes to encourage passengers to use these shuttles.

We have a radial transit system so every route comes in and out of our downtown transit system. If we change the downtown service, then that impacts the other routes due to transfer issues.

Circulator has streamlined other through routes by providing access to the "off route deviation" destination of the now streamlined route(s).

Shortened two routes and facilitated transfers to trolleys

All of the other routes, except two, intersect the downtown circulator.

The impacted fixed route now ends in the Downtown Transit Mall. The remaining service routing is picked up by connecting with the downtown circulator alignment as an extension.

Other fixed routes are able to use a portion of the fixed guideway to enter and exit our downtown station.

Upon opening of the Mall Shuttle in 1982–83, suburban Express and Regional routes were cut back to feed into stations at each end of the Mall. Subsequently, Local and Limited urban routes have been modified in some cases to cross the Mall, rather than running the length of downtown. This provides better access for an adjacent urban college campus that is not served by the Mall Shuttle.

Routes were modified, new routes were introduced, and weekend service was introduced on two new routes.

43. How has the downtown circulator been integrated with the transit system route pattern (check all that apply)?

Connections at major transfer points	80.5%	33
Added stops	26.8%	11
No integration—the circulator is separate from the existing system	19.5%	8
No duplication of existing route segments	17.1%	7
Fewer stops	2.4%	1
Other	7.3%	3

Other includes: (1) there are several stops where one can transfer to a bus in the transit system. Also, the downtown circulator makes stops at downtown's two multi-modal transit stations with access to regional rail, subway, and trolley lines. (2) The circulator runs on the same tracks as our light rail lines in downtown, serving all stops along the line in downtown. (3) There is one stop on the circulator that connects with the rest of the system.

44. Have there been issues regarding complementary ADA service associated with the downtown circulator?

Yes	12.2%	5
No—no change to service area/hours of operation	67.5%	27
Unsure	4.9%	2

45. Please describe the issues related to complementary ADA service associated with the downtown circulator.

Most issues have been maintenance-related due to mechanical failures. It has been problematic to incorporate ADA requirements with the mixed fleet of vintage rail trolleys and keep the various style mechanical lifts operating as expected.

We have to provide fare free complementary ADA service for trips during the circulator operating hours where both the origin and destination of the ADA trip falls within 3/4 mile of the circulator alignment. It's not a big deal, however, because I don't think we have actually received any requests.

FTA Triennial mandated free complementary ADA paratransit service.

It is unclear legally whether a fare-free circulator service is required to provide complementary ADA service.

A lower fare for ADA service is charged in the 3/4 mile zone around the trolley

46. Please characterize the following elements as major constraints, minor constraints, or not a constraint in the start-up and ongoing operation of the downtown circulator.

	Major constraint	Minor constraint	Not a constraint
Funding in general	56%	18%	26%
Cooperation with new partners	8%	41%	51%
Use of federal funds	11%	32%	58%
Downtown–neighborhood tension	0%	18%	82%
Difficulty in defining the target market	8%	35%	58%
Inability to identify a long-range funding source	40%	25%	35%
Maintaining interest among stakeholders	10%	38%	53%
Parking policies in downtown	15%	35%	50%
Difficulty in defining the route	18%	30%	53%
Disagreements on fares/fare instruments	5%	23%	73%
Other	33%	0%	67%

Other includes: (1) the city has declined to increase its contribution to offset estimated fare revenue loss to the transit agency, but would like the Ride Free Area in downtown to continue. (2) Demand for specially designed buses at considerable cost and added maintenance expense.

47. Please describe the nature of the major constraint affecting the downtown circulator below.

Responses summarized in Table 33 of report. Verbatim responses are provided here

This service was set up initially as a circulator paid for by downtown businesses. However, they did not want the circulator to run outside downtown so they took away half of the route. You need both a point of origin and a destination. With the vehicle running only in downtown, there was only a destination and most people continued to drive and park, then walk.

Operating funding is an ongoing major constraint. The city is the primary funding source for all operating funds. Although costs continue to increase, the funding level from the city has remained constant, but may be reduced in the future resulting in service cuts and less ridership.

Ongoing funding and desire for more routes. Lack of capital funds for expansion.

Covering the operating cost of the free fare zone. Potential loss in revenue if free fare zone is expanded.

Who is the target market? Why are we using this route for this low ridership route?

Very expensive. Even with the funding we receive from local businesses through the Downtown Business Commission, the service does not meet cost recovery standards.

Like other properties, our operating funding has declined in the past several years due to limits on state funding. The agency raised fares and reduced service in 2009 for the first time in 14 years and will reduce service further in 2010. The primary culprits have been a reduction is state operating aid and a simultaneous reduction in Mortgage Recordings Tax receipts; our only source of dedicated funding.

To be successful the routes need to operate much more frequently. Our system is at capacity. We need more buses and funds to operate to expand this service or we take it away from other areas. Currently these routes are not particularly high producers, so there is no logic in taking from others to increase these.

Transit funding in general is constrained, and since the city also operates an express commuter service that is more costly, available funds long term are constrained.

Used CMAQ funds to start the service and then incorporated into regular budget. Federal operating dollars are limited.

If funding is tight and reductions are needed, this is likely the first reduction. The entire route is served by other routes—not as conveniently, but no one completely loses service if this route is eliminated.

Free and available parking limits market for trolley. Two hour limit for street parking encourages employees to drive for lunch and errand trips.

Identifying the market was difficult because there were elements that could be useful for all shoppers, lunchtime, evening events, or commuters. However, there was limited funding, so it was impossible to serve all those markets effectively; settled on lunchtime trips as primary market.

The city does not receive any regional money from the regional transit agency and must use local funds for the services. There are high expectations from our stakeholders for services, and these cannot be met with our current funding levels. It is difficult to get all the stakeholders to agree on the purpose of the service.

Conflict of interest on valet parking for restaurants vs. bus stop parking zone.

Given the loss of property values over the last few years, the transit agency has lost a significant amount of ad valorem funding, which means that any subsidies for contractual services become more costly when in this case the service provided by the contractor only cost 25 cents per trip. The transit agency is working on a long-term sustainable funding source such as a Measure, but we are several years away and this can always impact our ability to provide downtown circulator service.

How to sustain funding, especially when our major champion will be leaving office at the end of this year.

Zero local (i.e., city and county) funding available. Trolley funding must be from agency general fund and is at the expense of other, more productive services. Routing tends to stretch in order to cover more destinations. Stretching the route creates a longer ride, which discourages ridership and also creates the need for additional vehicles in order to maintain frequency. More vehicles = more cost.

Funding for such projects is always a major constraint or factor. Also, taking right-of-way from general use lanes can be a difficult sell. Use of a contra-flow lane required additional treatment and protection. Keeping general use vehicles out of the fixed guideway route can be problematic for people unfamiliar with downtown roadways.

On-going funding for a free fare service

The major constraint was identifying a vehicle sufficiently unique and appealing (not a trolley) to choice riders. Once we identified the desired vehicle, taking delivery from the vendor was a huge ordeal. As a small agency, we don't have much leverage/buying power in this regard.

Too many conflicting interests within the TMAs

The estimated annual fare revenue net loss within the Ride Free Area exceeds the annual city financial contribution by a range of $0.6 million to $1.0 million. The transit agency currently is facing a multiple-year fiscal crisis due to a decline in transit sales tax revenues.

Funding

Transit agency would need further assistance from the city to expand circulator service.

Increasing operational cost. Not all of the routes are covered equally by outside funding source.

The trolley routes are a "nice to have." The resources devoted to the trolley routes may be more effectively spent on other routes.

I identified downtown parking policy because it is very low and encourages more auto travel. The city owns approximately 60% of the downtown structured, surface, and on-street parking and charges below-market rates. This promotes more auto travel within downtown.

48. Who markets the downtown circulator service, and who has overall responsibility for marketing?

	Overall Responsibility	Participates in Marketing
Transit agency	73%	18%
City	19%	33%
TMA	3%	18%
Downtown businesses	3%	44%
Downtown employers	0%	26%
Agencies promoting tourism	3%	62%
Convention center	0%	41%
Hotels	0%	51%
Other	0%	10%

Other includes: (1) Many of the destinations along the route promote it in their own marketing materials. Also, the contractor promotes the service. (2) County. (3) Ski resort. (4) Navy base and city parks department.

49. What type of marketing activities are undertaken for the downtown circulator?

Responses summarized in Table 35 of report. Verbatim responses are provided here.

Newspaper ads, Internet, and presentations

Nothing active at this point. The circulator was a failure.

Overall marketing is very limited; however, there are various special event promotions, system anniversaries, etc.

Website, cross-promotion with area BIDs/business improvement districts where the buses have ads featuring local businesses, brochures, partnerships with hotels, and conventions

Brochure, posters, meeting with hotel lobby desk attendants, website

We have been subtle in our marketing strategy with the circulator. We have characterized it as a part of our rail service, branding it in the same family.

Flyers, free ride promotion. No marketing in the last three years.

Flyers, print media advertising, on-board advertising, bus branding, and bus stops are separately branded.

We include it in our overall marketing approach. However, with the new 25 cent fare we are planning additional marketing promotions this Spring. We will be adding large decals on the bus that say 25 cent fare...hop on. Plus, getting the local historic attractions more involved in the promotion of it.

None beyond our normal marketing efforts; i.e., web page, pocket schedules, etc. Our marketing budget is fluctuating too.

Season promotions, unique flyers for businesses and employers, ads on buses, consumer timetables, transit fares for CTR employers

None specific to fare-free zone

Wide-range including state agency websites, signage, advertisements, and direct mail.

Free fare promotions, schedule distribution, flyers, inclusion in out of area marketing, free ride coupons to tourists, business sponsorships

Webpage, signage at stops, giveaway promotion

Special stop flag treatments, wayfinding maps, and service flyers

The buses themselves are the best marketing. Other than that it is typical signage, timetables, information to downtown entities.

The city's DOT staff works with the TMA to promote services through a special outreach effort that rotated between members, whereby one member could have employees ride for free for a one-month period. We also participate in rideshare fares. We have participated in a multi-district Art nights where attendees visiting various museums can ride for free. Similar with a "Colorado Street Bridge" party, where attendees can ride the buses free from various parking lots along the route or other transit.

Distribution of schedules/brochures to downtown hotels and businesses. Information on the city website and local tourism sites. Information at the train station. Very low budget promotion to date.

Transit guide book, downtown shuttle service guide, website, special event promotion package.

Ongoing marketing of the daily service is undertaken by the contractor including the marketing of downtown special events and promotions of the service.

Widely distributed printed brochure ads in *WHERE* magazine; video in hotel rooms; video on the circulator showcasing the destinations; website promotion; special events throughout the season; issuance of occasional press releases; Park 'n Ride discount at various parking facilities

TMA flyers

Advertising on buses, special events celebrating milestones of the circulator, Downtown Development Board maps and promotional materials.

Conventions, university sporting events, local media

We set aside 5% of operating budget for marketing and do everything from events and promotions (coupons, admission discounts, etc.) to guerilla marketing (flashmobs, etc.) to web/e-mail ads to radio.

Special timetables handed out at multiple/extra locations. Special vehicle branding.

Maps and schedules included in the regional "Transit Book." Brochures distributed by major employers, convention center, hotels, retailers, restaurants.

The Ride Free Area (RFA) in downtown is identified in transit route timetables and other information materials produced by the transit agency. Also, the RFA is identified in private materials produced for tourists.

Website, brochures

Circulator brochures are provided to the hotels, convention center, Convention and Visitors Bureau, and to convention planners for distribution to their customers/clients. The transit agency places ads in downtown-oriented publications that are geared to visitors and convention attendees.

Passenger information cards with detachable, perforated pocket-sized schedules are distributed at 36 locations along the route, including lodging establishments and the Visitors' Center. Transit agency staff attends hotel staff meetings to conduct individualized marketing regarding the Downtown–Waterfront Shuttle. The shuttle route is featured in all "Car Free" collateral. Flyers are available on all Amtrak trains. The "Car Free" brochure for the transit agency's Line 22 service to "City Highlights" features the Downtown–Waterfront Shuttle as a connection from the beach to Line 22. The Downtown–Waterfront Shuttle route is featured on the map in the explore section of *Seasons* magazine. Partnership website links are provided by "Car Free," Amtrak, the Conference and Visitors Bureau and Film Commission, and the Downtown Organization. The Downtown–Waterfront Shuttle route is featured in the "Cultural Arts" brochure produced by the Downtown Organization. The transit agency is an active member of the Conference and Visitors Bureau and Film Commission, the Downtown Organization, and the Chamber of Commerce, and works with these organizations to publicize the shuttle.

Transit website and TMA website; brochures produced by both. Downtown directory signage produced by TMA. Transit system includes Mall Shuttle in trip planning software on line and through Telephone Information Center. Special events produced by TMA, which is the downtown business promotion agency, and also some special events for anniversaries, new vehicles, etc., by transit system.

Brochures, rider alerts, promotional materials, website, etc.

Schedules, maps, on-street displays, unique shelters

Very little; the transit agency distributes downtown circulator brochures to the hotels and some businesses downtown. The Downtown Alliance employs workers (Amigos) in the PID area that provide information on the circulator to visitors that ask. The vehicles and stops (with downtown maps) provide the most visibility.

RIDERSHIP AND PRODUCTIVITY

50. What is the average daily ridership on the downtown circulator (including all routes, if more than one route is operated)?

Responses summarized in Table 36 of report. Verbatim responses are provided here.

Weekday	Saturday	Sunday
442		
3,112	4,447	1,460
13,541	8,966	6,463
900	1,900	1,600
7,140	881	384
550		
62		
61	37	9
524	225	151
200		
450	250	
575	600	
35		
500	500	300
350		
6,000		
5,000	7,500	7,500
203	434	231
1,381	1,921	1,656
190		
4,376	1,357	1,115
800	600	600
1,200	500	

Weekday	Saturday	Sunday	
2,250			
150	100		
1,300	2,000	1,900	
47,519	25,492	17,345	
24,800	8,100	2,700	
1,000			
4,000	5,200	3,250	

Weekday	Saturday	Sunday	
4,287	3,551	2,917	Average all
850	1,119	1,530	Median all
35	37	9	Minimum all
47,519	25,492	17,345	Maximum all

But See Next Page—Larger Circulators Are More Likely to Operate on Weekends!

4,680	3,147	1,839	Average employee-focused
688	1,119	1,115	Median employee-focused
190	225	151	Minimum employee-focused
24,800	8,966	6,463	Maximum employee-focused
2,033	1,937	1,741	Average tourist/visitor-focused
1,300	1,911	1,656	Median tourist/visitor-focused
150	100	300	Minimum tourist/visitor-focused
6,000	5,200	3,250	Maximum tourist/visitor-focused
5,322	5,343	5,862	Average multiple/other-focused
446	434	231	Median multiple/other-focused
35	37	9	Minimum multiple/other-focused
47,519	25,492	17,345	Maximum multiple/other-focused

Weekday	Saturday	Sunday	
1,108	—	—	Average weekday only
396	—	—	Median weekday only
35	—	—	Minimum weekday only
6,000	—	—	Maximum weekday only
594	363	—	Average weekday and Saturday only
513	375	—	Median weekday and Saturday only all
150	100	—	Minimum weekday and Saturday only

1,200	600	—	Maximum weekday and Saturday only
7,197	4,348	2,917	Average seven days a week
2,247	1,911	1,530	Median seven days a week
61	37	9	Minimum seven days a week
47,519	25,492	17,345	Maximum seven days a week

51. What is the average number of riders per revenue hour on the downtown circulator (including all routes, if more than one route is operated)?

Responses summarized in Table 36 of report. Verbatim responses are provided here.

Weekday	Saturday	Sunday
18	26	23
35	20	15
14	19.2	16.1
118		
9.8		
10	18	8
8.9	8.4	5.4

Weekday	Saturday	Sunday
10		
15	15	
19	19	
6		
45	45	37
30		
65		
36	42	42
17	17	19
25	39	29
10		
50	33	35
35	30	30
25		
185		
9.4	12.5	
34.2	38.5	38.3
261		

40	58	45
2.5		
21	28	23

Weekday	Saturday	Sunday	
41	28	26	Average all
23	26	26	Median all
3	8	5	Minimum all
261	58	45	Maximum all

But See Below—Larger Circulators Are More Likely to Operate on Weekends!

Weekday	Saturday	Sunday	
34	28	26	Average employee-focused
30	26	27	Median employee-focused
9	8	5	Minimum employee-focused
118	58	45	Maximum employee-focused
31	30	29	Average tourist/visitor-focused
25	33	29	Median tourist/visitor-focused
9	13	16	Minimum tourist/visitor-focused
65	45	38	Maximum tourist/visitor-focused
59	17	15	Average multiple/other-focused
15	17	14	Median multiple/other-focused
3	15	8	Minimum multiple/other-focused
261	18	19	Maximum multiple/other-focused

Weekday	Saturday	Sunday	
48	—	—	Average weekday only
10	—	—	Median weekday only
3	—	—	Minimum weekday only
185	—	—	Maximum weekday only
17	16	—	Average weekday and Saturday only
17	15	—	Median weekday and Saturday only all
9	13	—	Minimum weekday and Saturday only
25	19	—	Maximum weekday and Saturday only

Weekday	Saturday	Sunday	
43	30	26	Average seven days a week
34	29	26	Median seven days a week
9	8	5	Minimum seven days a week
261	58	45	Maximum seven days a week

52. Would you be willing to participate further as a case study, involving a telephone interview going into further detail on your agency's experience with downtown circulators, if selected by the TCRP panel for this project?

Yes	78.9%	30
No	21.1%	7

53. Is there another transit system that you suggest we contact for this synthesis project? If you know of a contact at that system, please list the name also.

Various responses.

APPENDIX C

Participating Transit Agencies

DEVELOPMENT AND DEPLOYMENT OF DOWNTOWN CIRCULATORS

1.	Abilene, TX	City Transit
2.	Albany, NY	Capital District Transportation Authority
3.	Albuquerque, NM	ABQ Ride
4.	Alturas, CA	Modoc Transportation
5.	Anchorage, AK	Municipality of Anchorage Public Transportation Department
6.	Ann Arbor, MI	AATA (The Ride)
7.	Antioch, CA	Eastern Contra Costa Transit Authority
8.	Arlington Heights, IL	PACE Suburban Bus
9.	Austin, TX	Capital Metro
10.	Baltimore, MD	Baltimore City Department of Transportation
11.	Burnsville, MN	Minnesota Valley Transit Authority
12.	Canton, OH	Stark Area Regional Transit Authority
13.	Charleston, SC	Charleston Area Transportation Authority
14.	Charlotte, NC	Charlotte Area Transit System
15.	Chattanooga, TN	Chattanooga Area Regional Transportation Authority
16.	Cleveland, OH	Greater Cleveland Regional Transit Authority
17.	Culver City, CA	Culver City Bus
18.	Dallas, TX	Dallas Area Rapid Transit
19.	Davis, CA	Unitrans
20.	Denver, CO	Regional Transportation District
21.	Everett, WA	Everett Transit
22.	Flagstaff, AZ	Northern Arizona Intergovernmental Public Transportation Authority
23.	Fort Myers, FL	Lee County Transit
24.	Fort Wayne, IN	Citilink
25.	Fresno, CA	Fresno Area Express
26.	Glendale, CA	Glendale Beeline
27.	Green Bay, WI	Green Bay Metro
28.	Halifax, NS	Metro Transit, Halifax
29.	Hamden, CT	Greater New Haven Transit District
30.	Hartford, CT	Connecticut Transit
31.	Jacksonville, FL	Jacksonville Transportation Authority
32.	Johnstown, PA	Cambria County TA (CamTran)
33.	Lancaster, PA	Red Rose Transit
34.	Lansing, MI	Capital Area Transportation Authority
35.	Lemont Furnace, PA	Fayette Area Coordinated Transit
36.	Lexington, KY	LEXTRAN
37.	Little Rock, AR	Central Arkansas TA
38.	Long Beach, CA	Long Beach Transit
39.	Los Alamos, NM	Los Alamos County—Atomic City Transit
40.	Los Angeles, CA	Los Angeles Department of Transportation
41.	Louisville, KY	Transit Authority of River City
42.	Memphis, TN	Memphis Area Transit Authority
43.	Meridian, ID	Valley Regional Transit
44.	Miami, FL	Miami–Dade Transit
45.	Mississauga, ON	Mississauga Transit
46.	Montreal, QU	Agence métropolitaine de transport
47.	Morgantown, WV	Mountain Line Transit
48.	Nashville, TN	Nashville Metropolitan Transportation Authority
49.	New Haven, CT	Connecticut Transit

50.	Newark, NJ	New Jersey Transit
51.	Oceanside, CA	North County Transit District
52.	Olympia, WA	Intercity Transit
53.	Orlando, FL	LYNX
54.	Parkersburg, WV	Mid-Ohio Valley Transit Authority
55.	Pasadena, CA	Pasadena ARTS
56.	Philadelphia, PA	Southeastern Pennsylvania Transportation Authority
57.	Philadelphia, PA	Center City District
58.	Phoenix, AZ	Valley Metro
59.	Pittsburgh, PA	Port Authority of Allegheny County
60.	Plymouth, MN	Plymouth Metrolink
61.	Portland, OR	Tri-County Metropolitan Transit District of Oregon
62.	Reno, NV	Regional Transportation Commission
63.	Rockville, MD	Montgomery County Ride On
64.	St. Petersburg, FL	Pinellas Suncoast Transit Authority
65.	Salem, OR	Salem Keizer Transit
66.	San Antonio, TX	VIA
67.	San Diego, CA	Metropolitan Transit System
68.	Santa Barbara, CA	Santa Barbara Metropolitan Transit District
69.	Seattle, WA	King County Metro Transit
70.	Shakopee, MN	City of Shakopee
71.	Stateline, NV	South Tahoe Area Transit Authority
72.	Syracuse, NY	Central New York Regional Transportation Authority
73.	Tampa, FL	Hillsborough Area Regional Transit
74.	Thousand Palms, CA	SunLine Transit Agency
75.	Tucson, AZ	Sun Tran
76.	Washington, DC	Washington Metropolitan Area Transit Authority
77.	Washington, DC	District Department of Transportation
78.	Wenatchee, WA	Link Transit

Abbreviations used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation