LIBERTY STATE PARK CIRCULATOR

Cost-Benefit Analysis

Stump/Hausman Partnership

SAM SCHWARTZ ENGINEERING

City of Jersey City
Technical Advisory Committee
Meeting III

October 16, 2012

WELCOME

- Introductions
- Survey Results
- Future Conditions/ Modeling
- Purpose and Need
- Report
- Project Schedule

Source: http://consequenceofsound.net/2009/08/where-we-live-liberty-state-park-jersey-city-nj/

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TRAVEL SURVEY

Source: http://massbike.org/blog/2012/03/08/and-the-survey-says/

- **Types of surveys conducted:**
  - Liberty State Park Interview Survey
  - Liberty Science Center Interview Survey
  - Online user Survey
  - Generic Survey (handout)

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TRAVEL SURVEY

- **Results were used for demand model**
- **Used Survey Monkey for on-line survey**
- **All surveys were provided in Spanish**
- **Surveys were keep intentionally brief to increase participation**
- **Jersey City issued a press release and flyer to promote survey**
- **TAC members linked their websites to survey**

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TRAVEL SURVEY

Survey Type	Responses
• Liberty State Park Interview Survey	733
• Liberty Science Center Interview Survey	738
• On-line Survey	528
• Generic Survey (handout)	47
• Total	2,046

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LSP INTERVIEW SURVEY

- Surveyed on one weekday and a Sunday
- Tested questions in field at LSP prior to survey
- Survey conducted between 10 AM and 8 PM
- Positioned five staff throughout park:
  - Ferry/CRRNJ Terminal
  - Liberty Landing Marina/North Field/9-11 Memorial
  - Park Headquarters/South Lawn/ Boat Launch
  - Green Park/Playground/Liberty Walk
  - Park Entrance on Audrey Zapp Drive/Marina/Grove of Remembrance
- Targeted actual visitors to the park
- Goal: 600 to 800 completed surveys

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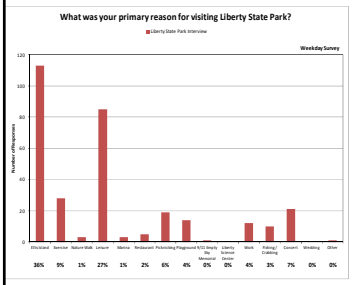
LSP INTERVIEW SURVEY



Main Takeaways:

- Recreational trips were mostly from the local areas
- Visitors to Ellis and Liberty Islands mostly come from great distances (out of state and foreign)
- Most visitors did not have a secondary destination
- Average length of stay is approximately 3 hours
- Average group size:
  - 3.1 people - weekday
  - 3.2 people - weekend
- Approx. 2/3 visit on a relatively infrequent basis
- Most travel by car
  - 80% (weekday) and 75% (weekend)
- Likelihood they would use shuttle service if available:
  - 41% (weekday) and 36% (weekend) - very likely
  - 23% (weekday) and 29% (weekend) - very unlikely

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LSC INTERVIEW SURVEY

- **Surveyed on five weekdays and three weekend days**
- **LSC provided volunteers to administer survey**
- **LSC offered incentives to participants**
- **Goal: 600 to 800 completed surveys**
- **Targeted visitors to the LSC and their unique travel characteristics**

Source: http://consequenceofsound.net/2009/08/where-we-live-liberty-state-park-jersey-city-nj/

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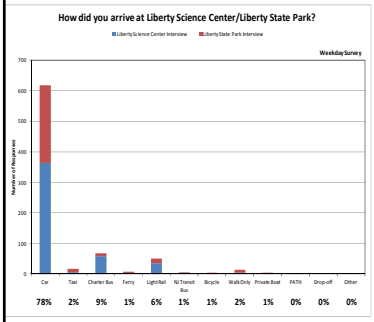
LSC INTERVIEW SURVEY



Main Takeaways:

- The highest number of visitors came from New York State
- Most visitors did not have a secondary destination
- Average length of stay is approximately 4 hours
- Average group size:
  - 4.1 people - weekday
  - 3.8 people – weekend
- Most travel by car
  - 77% (weekday) and 89% (weekend)
- Likelihood they would use shuttle service if available:
  - 25% (weekday) and 35% (weekend) - very likely
  - 21% (weekday) and 36% (weekend) - very unlikely

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ONLINE SURVEY

Source: http://static.wix.com/media/6658ab486ee0a0e49ea9c5d1a9770a01b.wix_mp

Source: http://www.smcars.net/forums/attachments/trains/125256d1312904377-trolley-some-kind-hand-propelled-rail-vehicle-trolley.jpg

- **TAC provided link to project website (and survey) from their websites**
- **First question prompted either user or non-user survey**
- **Was accessible online for about one month**
- **Press release and flyer promoted survey**
- **Goal: 300 completed surveys for each survey type**

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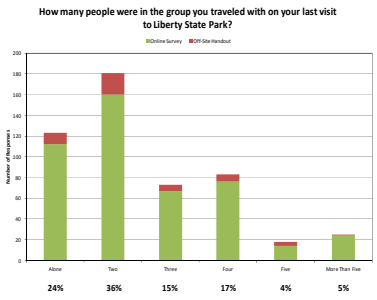
ONLINE SURVEY



Main Takeaways:

- Leisure was the most frequent purpose for visiting LSP
- 58% of respondents come from Jersey City
- Most visitors had a secondary destination
- Average group size:
  - 2.6 people
- Almost half visit several times a year
- Most travel by car (61%)
- Likelihood they would use shuttle service if available:
  - 31% - very likely
  - 31% - very unlikely

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MODELING

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Potential Markets for LSP Circulator

1. **Regional Attractions Visitors**
2. **Local Recreational Visitors**
3. **Liberty Landing Ferry Commuters & Visitors**
4. **Industrial Park Workers**

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1. Regional Attractions Visitors

- **Includes Visitors to Liberty Science Center, Statue of Liberty/Ellis Island Ferry, and Central Railroad of New Jersey Terminal.**
- **Current and Future Demand Not Well Estimated by the NJRTM-E.**
  - "Non Work Trips" Include a Wide Variety of Trip Characteristics.
  - Calibration is Done on a Regional Basis.
  - Includes Average Weekday Condition (No Weekend, No Seasonality).
- **Current Demand Estimated Using Available Data and 2012 LSC Visitor Interview Survey.**
- **Future Demand (2020 and 2035)Estimated Using Historic Data, Trend Analysis, and Regional Growth.**

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Current Demand for LSC Estimated Using 2012 LSC Survey

- **From available data, we estimate approximately 500,000 annual Liberty Science Center visitors in 2011.**
- **From the LSC Surveys, we identified 738 LSC visitors.**
- **Estimated trip frequency data aggregated by region.**
  - 90% from New Jersey, New York, Pennsylvania
    - 16% from Hudson County
    - 6% from Manhattan/Brooklyn
  - 9% from rest of USA
  - 1% from International locations

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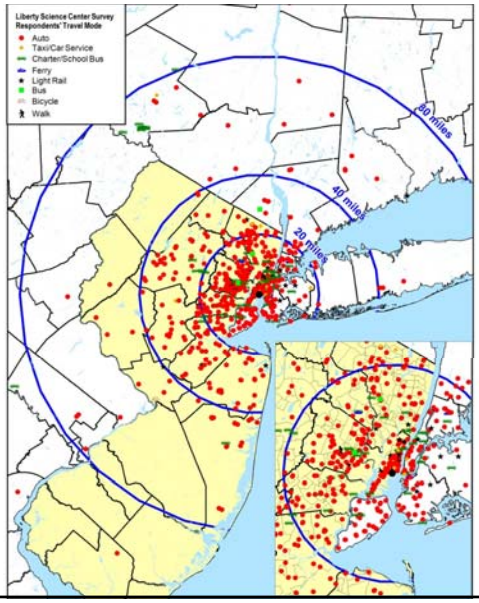
Home Location of Liberty Science Center Survey Interviewees



- 59% within 20 miles
- 23% btw 20 and 40 miles
- 9% btw 40 and 80 miles
- 8% more than 80 miles
- 1% international

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Current Demand For Ferry Estimated Using 2012 LSP Visitor Interview Survey

- **From available data, we estimate approximately 700,000 annual Statue of Liberty/Ellis Island visitors to LSP in 2011.**
- **From the Visitor Interview Surveys, we identified 237 Statue of Liberty/Ellis Island visitors.**
- **Estimated trip frequency data aggregated by region.**
  - 49% from New Jersey, New York, Pennsylvania
    - **11% from Hudson County**
    - **5% from Essex County**
    - **0.4% from Manhattan**
    - **0.0% from Brooklyn**
  - 38% from rest of USA
  - 13% from International locations

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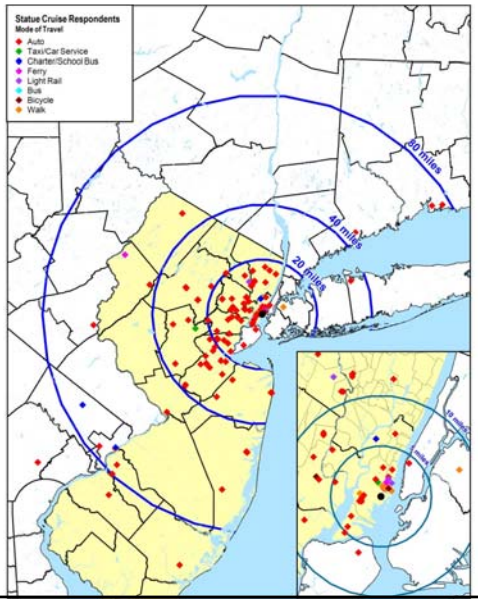
Home Location of Statue of Liberty/ Ellis Island Survey Interviewees



- 29% within 20 miles
- 12% btw 20 and 40 miles
- 8% btw 40 and 80 miles
- 38% more than 80 miles
- 13% international

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2. Local Recreational Visitors

- **Includes Visitors Using LSP for "Passive" Activities.**
- **Current and Future Demand Not Well Estimated by the NJRTM-E.**
  - Same Limitations as for Regional Attraction Visitors.
  - Trips That Use Local Streets Only are Not Specifically Addressed.
- **Current Demand Estimated Using Available Data and 2012 LSP Visitor Interview Survey.**
- **Future Demand (2020 and 2035) Estimated Using *LSP Local Visitor Model*.**

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Current Demand For Local Recreation Estimated Using 2012 LSP Visitor Interview Survey

- **From available data, we estimate approximately 3 million annual local recreational visitors to LSP in 2011.**
- **From the Visitor Interview Surveys, we identified 323 Local Visitors (Hudson County and Newark).**
- **Using reported visit frequency, these surveys were factored to equal 3 million annual visitors.**
- **Estimated trip frequency data aggregated to neighborhood in Jersey City and municipality within the rest of Hudson County and Newark.**
  - 81.0% from Jersey City
    - **21.2% MLK-Bergen-Lafayette**
    - **13.5% Greenville**
    - **10.9% Historic Downtown**
    - **10.3% Waterfront**
  - 8.8% from Bayonne
  - 6.5% from Newark
  - 0.4% from Hoboken
  - 3.3% from rest of Hudson County

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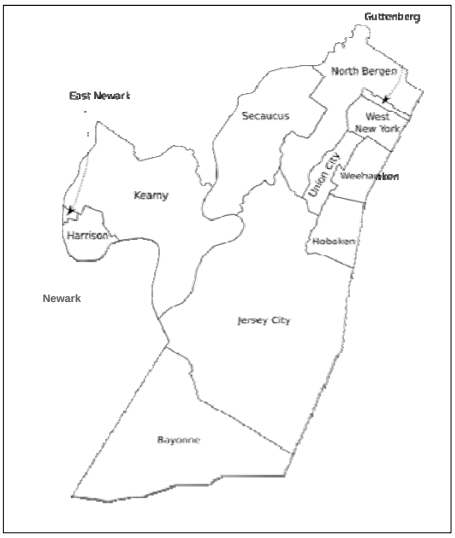
Hudson County MCDs and Jersey City Neighborhoods



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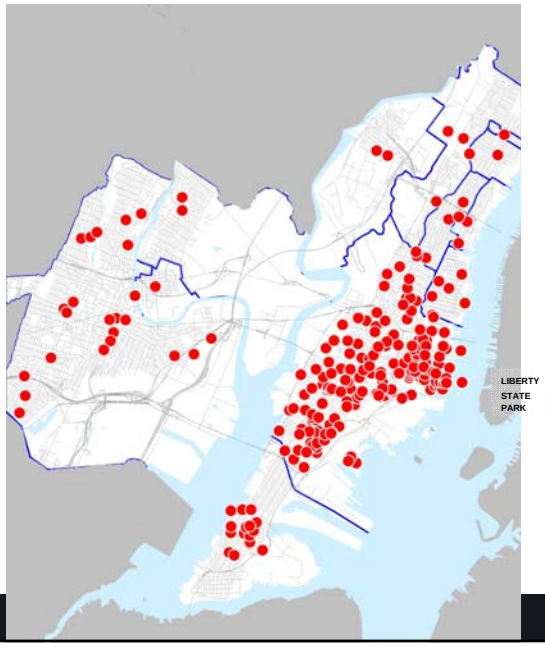
Home Location of Survey Interviewees



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LSP Local Visitor Estimation

- **The Plan: Estimate Future Local Visitors as a Function of Changes in Demographics and Improvements to the Transportation Network.**
- **Key Variables:**
  - Number of Households and their Characteristics, i.e. Auto Availability, Children
  - Function of Travel Time & Distance to/from LSP
  - Competing Opportunities, i.e. Other Parks
  - Circulator Service (Route(s), Headway, Service Period)
  - Fare Sensitivity to be Addressed Separately
- **Proposed Model Based on Gravity Model and Intervening / Competing Opportunities Model**

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LSP Local Visitor Model

- **Variables:**
  - **H,** Households with Vehicle available and 3+ persons (Census)
  - **TT**, Auto Travel Time (NJRTM-E)
  - **I**, Median Household Income (Census)
- **Form:**
  - Annual Trips Per Household = EXP(*a****I** + *b****TT** ^0.5 + *c****H**^1.2 + *d*)
    - *a* = -8.22E-06 (trip rate decreases at higher income levels)
    - *b* = -2.96 (trip rate decreases with longer travel times)
    - *c* = 7.22E-06 (trip rate increases at higher population)
    - *d* = 1.34E+01
- **Result: R^2 = 0.86**
  - R^2 is an indication of how well a regression equation correlates with observed values; and how well it will predict future values. R^2 of 0.86 means 86% of variation in values can be explained by the explanatory variables.

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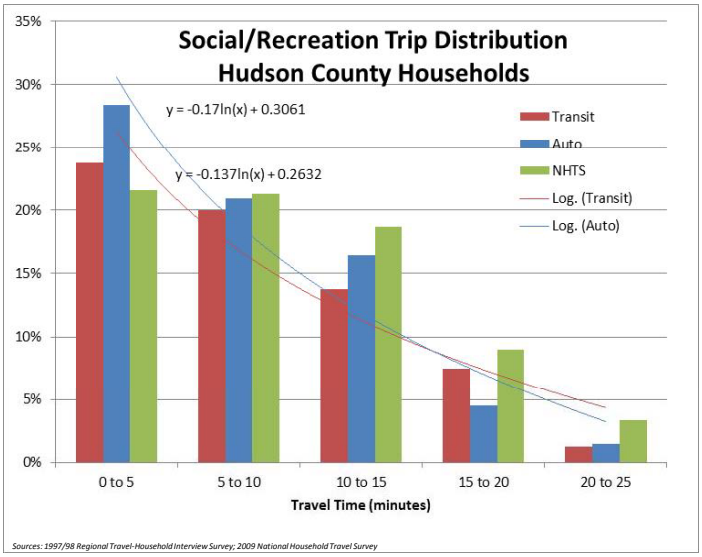
Social/Recreational Trip Length



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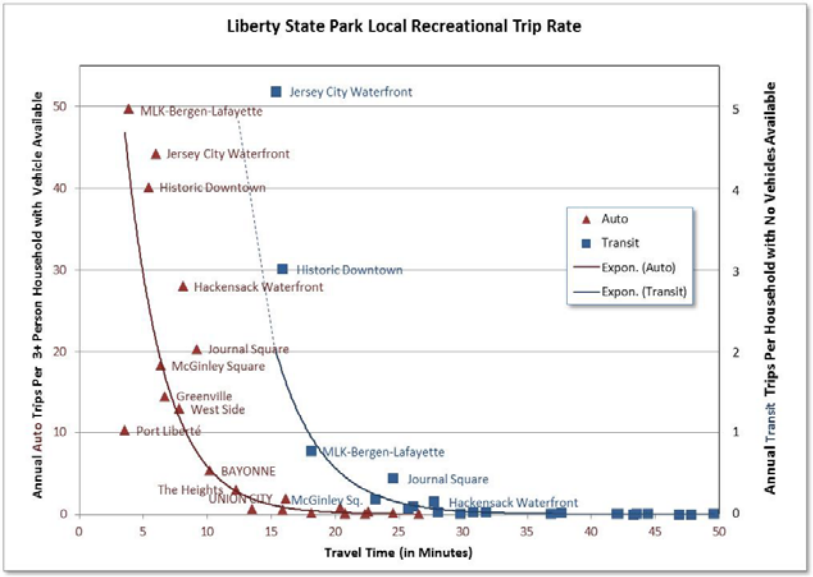
Liberty State Park Local Recreational Trip Rate



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3. Liberty Landing Ferry Commuters & Visitors

- Includes Users of Liberty Landing Marina and Liberty House and Maritime Parc Restaurants.
- Current Demand Underserved Based on 2009 NJ Transit Bus Study.
- Current Demand Levels Estimated from Available 2010 Census Data.
- Future (2020 and 2035) Residential Commuter Demand Estimated Using NJRTM-E and Jersey City Anticipated Growth.
- Market May Not Be Served by Proposed Circulator Service.

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4. Industrial Park Workers

- Includes Workers in the Burma Road/Morris Pesin Drive Area South of LSP
- Current Demand Underserved Based on 2009 NJ Transit Bus Study.
- Current Demand Levels Estimated from Available 2010 Census Data.
- Future Employee Demand Estimated Using NJRTM-E (2020 and 2035).
- Market May Not Be Served by Proposed Circulator Service.

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Future LSP Circulator Trips

Data	Source	Circulator Market		
		LSC	Ferry	Local Rec.
LSC Visitor Survey	2012 Survey	✓		
LSP Visitor Survey	2012 Survey		✓	✓
Regional Household Growth	NJRTM-E	✓	✓	✓
Municipal Household Growth	NJRTM-E			✓
Local Household Growth	Jersey City Division of Planning			✓
Municipal Vehicle Availability Rates	Census ACS			✓
Jersey City Vehicle Availability Rates	Route 440 Study			✓
Household Income	Census ACS			✓
Regional Roadway Improvements	NJRTM-E			✓
Regional Transit Improvements	NJRTM-E			✓
Local Transit Improvements	Jersey City Division of Planning			✓

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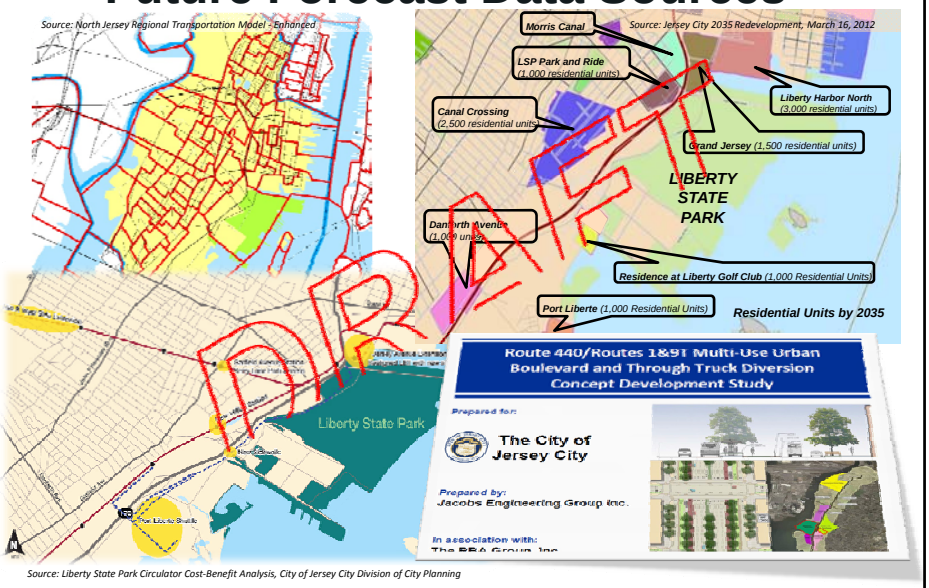
Future Forecast Data Sources



Source: Liberty State Park Circulator Cost-Benefit Analysis, City of Jersey City Division of City Planning

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Jersey City Anticipated Redevelopment

Source: Jersey City 2035 Redevelopment, July 30, 2012

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Existing and Future Transit Trips

- **Total Transit Usage Based on Ridership of Liberty State Park #305 WHEELS route in 2009.**
  - 2009: 58,000 annual riders; daily service April-December, Weekend and holiday only January-March.
  - 2010: Service discontinued in June.
- **"Existing" Circulator Trip Distribution Estimated From**
  - LSC survey for multiple park destination trips
  - Ferry survey for visitors using transit
  - LSP survey for recreational trips (LSP Local Visitor Model)
- **Future Circulator Trip Distribution Estimated From**
  - Regional Population Growth for LSC and Ferry
  - Jersey City Anticipated Development and Municipal Population Growth (rest of Hudson County and Newark)
  - Proposed HBLR Improvements

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Estimating New York City Demand

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Liberty State Park Circulator Projected Shuttle Ridership

Market	2011	2020	2035
LSC Visitor	4,800 (8%)	5,100 (6%)	5,800 (5%)
Ferry Visitor	26,500 (44%)	28,300 (34%)	31,800 (27%)
Local Recreational	28,700 (48%)	50,900 (60%)	79,900 (68%)
Total	60,000 (100%)	84,300 (100%)	117,500 (100%)

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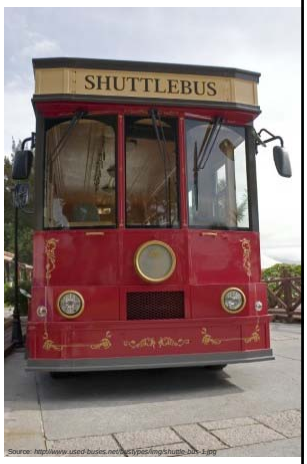
PURPOSE AND NEED

- **Why is a transit circulator needed?**
- **Consistency with NEPA guidelines**

  "explains to the public and decision makers that the expenditure of funds is necessary and worthwhile"
- **Purpose and Need Statement**
  - Purpose Statement: "States why the transportation project is being proposed"
  - Need Statement: "…describes the key problems to be addressed by the project and …provides factual foundation for the statement of the project purpose."



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PURPOSE & NEED

- **Transit Demand**
- **Social Based Need**
- **Goals and Objectives**
  - Study Goals
  - Stakeholder Input

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PURPOSE & NEED

Transit Demand

Current Ridership

- **2009 - 60,000**

Projected Ridership

- **2020 - 84,000**
- **2035 - 117,000**

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PURPOSE & NEED

Social Based Need

Local Recreational Visitors

- **81% visitors from Jersey City**
- **21% of Jersey City visitors from MLK-Bergen Lafayette neighborhoods**

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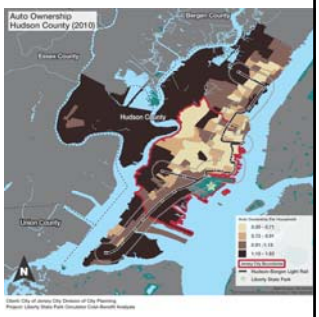
PURPOSE & NEED

Social Based Need



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PURPOSE & NEED

Study Goals

- **Reduce auto travel to park**
- **Capitalize on the multi-modal mass transit network to make park more accessible**
- **Consider transportation needs of underserved communities**
- **Develop connectivity within Liberty State Park and consider destinations near the park**
- **Recognize park as local and regional destination**
- **Support tourism**
- **Improve linkages with National Monuments**

Source: http://consequenceofsound.net/2009/08/where-we-live-liberty-state-park-jersey-city-nj/

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PURPOSE & NEED

Stakeholder Input

- **What is your organization's mission?**
- **What are your organization's plans for the next 20 years?**
- **Provide any other relevant comments related to the need for transit service to and within the park.**

Source: http://www.gazellesystems.com/blog/bid/117540/Establishing-the-Weekly-Meeting-Habit-at-the-Group-Level

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PURPOSE & NEED

"The purpose and need statement should be concise and understandable as possible….is typically only one or two paragraphs long...that focuses on the primary transportation challenges" ***(FTA/FHA Guidance on Purpose and Need)***

Draft Purpose Statement: Liberty State Park Transit Circulator

The purpose of the Liberty State Park Transit Circulator is to provide a reliable transit service to and from the park and its environs that:

1. **Provides an alternative to predominantly automobile access to the park;**
2. **Serves the current and projected future transit demand to the park for recreational and tourist markets;**
3. **Provides the means to visit the park for Jersey City residents who do not have access to a car.**

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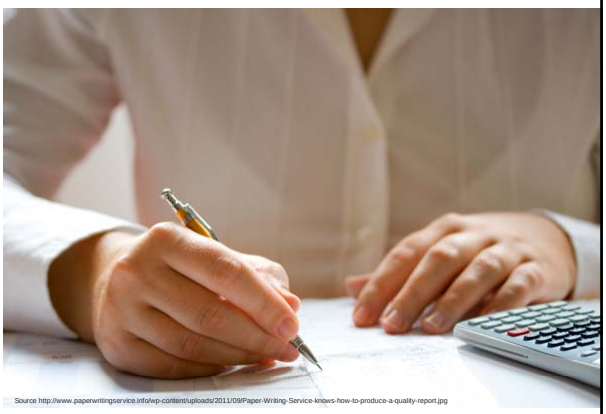
REPORT

- Existing Conditions
- Survey Results
- Future Conditions (including modeling)
- Purpose and Need



Source http://www.paperwritingservice.info/wp-content/uploads/2011/09/Paper-Writing-Service-knows-how-to-produce-a-quality-report.jpg

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QUESTIONS AND ANSWERS

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PROJECT SCHEDULE

Liberty State Park Circulator Cost-Benefit Analysis

Project Schedule

		15 Month Project Duration														
		Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Task 1A	Existing Conditions	▲														
Task 1B	Website															
Task 2	Future Conditions				▲											
Task 3	Purpose & Need								▲							
Task 4A	Options for Circulator Service									▲						
Task 4B	Public Meeting #1										★					
Task 5	Evaluation															
Task 6	Implementation Strategy											▲				
Task 7A	Draft Final Report													▲		
Task 7B	Public Meeting #2														★	
Task 8	Final Report															▲

Legend

▲ Technical Advisory Committee (TAC) Meeting

★ Public Meeting

Note: The exact dates of the TAC and Public Meetings are to be determined.

Friday, October 12, 2012

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NEXT STEPS

- **Mid October – Begin Options for Circulator Service**
- **End of October - Finalize Purpose & Need**
- **End of October – Finalize Future Conditions Report**
- **End of November – Next TAC Meeting**
- **Beginning of December – Start Evaluation of Alternatives**
- **Mid December – 1st Public Meeting**

Source: http://www.fkschools.net/notices/notices/07-08/2007-2008%20archives.htm

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