Item #2

APPROVAL OF MINUTES

Item #3

OVERVIEW OF TRAC AGENDA
Committee Goals

- Learn about the RTC transit system, as well as transit systems of other western regions.
- Provide input on RTC transit priorities, projects, and new technologies.
- Determine if additional funding is necessary and if so, provide recommendations on short and long term funding mechanisms for projects.

TRANSIT FRAMEWORK

October 2016 – Value of transit globally, evolution of transit locally


December 2016 – Transit funding & regional comparisons

January 2017 – Transit next steps
Item #4

MAJOR PROJECTS & TRANSPORTATION INFRASTRUCTURE UPDATE

HIGH CAPACITY TRANSIT ON MARYLAND PKWY.
PROPOSED ROUTE

- Downtown to Airport
- 8.7-Mile Route
- Transit Technologies:
  - Bus Rapid Transit
  - Urban Light Rail
- 25 Station Locations
- Key Activity Centers:
  - Downtown Las Vegas
  - Las Vegas Medical District
  - Sunrise Hospital
  - Boulevard Mall
  - UNLV
  - McCarran Int’l. Airport

RECENT WORK

- Refined alignment and stations
- Environmental technical studies
  - Historic resources
  - Traffic/parking evaluation
  - Noise and vibration assessment
- Public Meetings
  - Sept / Oct 2015
  - March 2016
- Ongoing Stakeholder Coordination
  - Maryland Parkway Coalition
  - Clark County and City of Las Vegas
  - Real estate community
CONFIGURATION OPTIONS

Center-Running

Side-Running

CONFIGURATION COMPARISON

SIDE-RUNNING
• More efficient traffic operations
• Requires less RoW
• Slightly slower speed

CENTER-RUNNING
• Less efficient traffic operations
• Requires more RoW
• Slightly faster speed

Equivalent
• Ridership
• Economic development
• Urban/station design and corridor enhancements
• Passenger experience and transit service quality
• Bike and pedestrian facilities
• Capital and O&M Costs
## SIDE-RUNNING CONCEPT
(NEAR THE BOULEVARD MALL)

## BENEFIT / COST COMPARISON

<table>
<thead>
<tr>
<th></th>
<th>Existing Route 109</th>
<th>Enhanced Route 109</th>
<th>BRT</th>
<th>Urban Light Rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ridership (2014 model)</td>
<td>9,000</td>
<td>10,000</td>
<td>13,300</td>
<td>16,100</td>
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<tr>
<td>Capital cost (2016 $)</td>
<td>$15M</td>
<td>$29M</td>
<td>$300M</td>
<td>$600M</td>
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<tr>
<td>O&amp;M cost (2016 $)</td>
<td>$5.9M</td>
<td>$6.8M</td>
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<tr>
<td>O&amp;M cost per boarding</td>
<td>$2.18</td>
<td>$2.27</td>
<td>$1.93</td>
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<tr>
<td>Economic Development Potential</td>
<td>Minimal</td>
<td>Minimal</td>
<td>Fair</td>
<td>Best</td>
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<tr>
<td>Meets Purpose &amp; Need</td>
<td>No</td>
<td>No</td>
<td>Fair</td>
<td>Best</td>
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</table>
INITIAL STATION DESIGN CONCEPTS

PROJECT IMPLEMENTATION SCHEDULE

<table>
<thead>
<tr>
<th>Year</th>
<th>Environmental Assessment</th>
<th>Alternatives Analysis</th>
<th>Preliminary/Final Design</th>
<th>Bid/Construction/Testing</th>
<th>Revenue Service</th>
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<tr>
<td>2014</td>
<td></td>
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<td>2015</td>
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<tr>
<td>2016</td>
<td>Environmental Assessment</td>
<td>Alternatives Analysis</td>
<td>Preliminary/Final Design</td>
<td>Bid/Construction/Testing</td>
<td>Revenue Service</td>
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<tr>
<td>2017</td>
<td></td>
<td></td>
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<tr>
<td>2018</td>
<td>Environmental Assessment</td>
<td>Alternatives Analysis</td>
<td>Preliminary/Final Design</td>
<td>Bid/Construction/Testing</td>
<td>Revenue Service</td>
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<tr>
<td>2019</td>
<td>Environmental Assessment</td>
<td>Alternatives Analysis</td>
<td>Preliminary/Final Design</td>
<td>Bid/Construction/Testing</td>
<td>Revenue Service</td>
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<tr>
<td>2020</td>
<td>Environmental Assessment</td>
<td>Alternatives Analysis</td>
<td>Preliminary/Final Design</td>
<td>Bid/Construction/Testing</td>
<td>Revenue Service</td>
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<tr>
<td>2021</td>
<td>Environmental Assessment</td>
<td>Alternatives Analysis</td>
<td>Preliminary/Final Design</td>
<td>Bid/Construction/Testing</td>
<td>Revenue Service</td>
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<tr>
<td>2022</td>
<td>Environmental Assessment</td>
<td>Alternatives Analysis</td>
<td>Preliminary/Final Design</td>
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<td>Revenue Service</td>
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<tr>
<td>2023</td>
<td>Environmental Assessment</td>
<td>Alternatives Analysis</td>
<td>Preliminary/Final Design</td>
<td>Bid/Construction/Testing</td>
<td>Revenue Service</td>
</tr>
</tbody>
</table>
NEXT STEPS

1. Continue public and stakeholder engagement
2. Finalize agreement on:
   - Alignment / configuration
   - Station locations and design concept
3. Select Locally Preferred Alternative
4. Complete Environmental Assessment
5. Complete development of Financial Plan
6. Initiate FTA New Starts funding process
Las Vegas Monorail Company owns the system

- Private not-for-profit 501(c)4
- No shareholders
- A ‘public benefit corporation’

Public benefit corporations provide services typically provided by government entities

“Who owns the Monorail?”
SYSTEM BENEFITS

- 4 miles long, 7 stations
- Capacity – 224 per train, up to 130,000/day
- Speed – up to 50 mph, end to end service in 14 minutes
- Fully Automated Train Control System
- Elevated – preserves roadway capacity while increasing mobility
- Reduces annual vehicle miles traveled (VMT) – 2.3m in 2015
- Reduces emissions from vehicle trips – 29.5 tons in 2015
- No public subsidy
The Monorail system carries tens of thousands daily, but the biggest mobility impact is during major events.

- CES – 165,000
- SEMA – 160,000
- NAB – 130,000
- Rock in Rio – 100,000+ rides, 28% mode share
- Marathon Weekend – 100,000+ rides
- New Year’s Eve – 50,000+ rides
- Concerts & Fights
**EXPANSION PRIORITIES**

- Mandalay Bay (TIBP), Sands Expo & Convention Center (TIBP)
- McCarran Airport, Convention Center Expansion (TIBP)
- Downtown

**DEVELOPMENT UPDATE**

**PROJECT DESCRIPTION**

- Approx 1.14 miles new guideway
- 1 new station at Mandalay Bay
- Ped access connector between Mandalay Bay and Luxor hotels
- Upgrade/modifications to Automated Train Control
- Construction, testing & commissioning est.: 24 months
With stations at Mandalay Bay and Sands Expo & Convention Center, the Monorail will be directly connected to:

- 41,000 hotel rooms
- 8M square ft. of convention & meeting space
- 223 retail venues
- 195 dining venues
- 70 nightlife & bar venues
- 42 shows & concert, event & show venues
- 15 unique attractions & experiences
- 2 arenas
Questions?

TRAC Item #5

High Capacity Transit Plan Update
Southern Nevada High Capacity Transit Plan
Project Overview

How should Southern Nevada’s HCT network be developed?

- Lead the overall project
- Lead all transit planning tasks

- Lead land use planning and identify transit-oriented development opportunities

- Determine the impacts of land use changes

- Estimate transit demand

- Lead civic engagement efforts

- How should Southern Nevada’s HCT network be developed?

- What land use changes could HCT stimulate? What land use changes could help support HCT?

- If you develop HCT and enable land use changes, how much will things change?

- If you build it, how many will ride it?

- What does the community want?
- What will the community support?

Nelson/Nygaard Consulting Associates.
Who We Are and What We’ll Do

**Firm**

**Project Role**

Lead the overall project  
Lead all transit planning tasks

**Products**

How should Southern Nevada’s HCT network be developed?

Lead land use planning and identify transit-oriented development opportunities

What land use changes could HCT stimulate? What land use changes could help support HCT?

Determine the impacts of land use changes

If you develop HCT and enable land use changes, how much will things change?

Estimate transit demand

If you build it, how many will ride it?

Lead civic engagement efforts

What does the community want?  
What will the community support?

---

## SOUTHERN NEVADA HIGH CAPACITY TRANSIT PLAN

### Who We Are and What We’ll Do

<table>
<thead>
<tr>
<th>Firm</th>
<th>Project Role</th>
<th>Products</th>
</tr>
</thead>
</table>
| Nelson Nygaard Consulting Associates | Lead the overall project  
Lead all transit planning tasks | How should Southern Nevada’s HCT network be developed?                     |
| MIG                         | Lead land use planning and identify transit-oriented development opportunities | What land use changes could HCT stimulate?  
What land use changes could help support HCT? |
| Econorthwest                | Determine the impacts of land use changes                                   | If you develop HCT and enable land use changes, how much will things change? |
| Fehr & Peers                | Estimate transit demand                                                     | If you build it, how many will ride it?                                  |
| Purdue Marion & Associates | Lead civic engagement efforts                                               | What does the community want?  
What will the community support? |
| RTC                        |                                                                             |                                                                          |

Nelson/Nygaard Consulting Associates.

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## SOUTHERN NEVADA HIGH CAPACITY TRANSIT PLAN

### Who We Are and What We’ll Do

<table>
<thead>
<tr>
<th>Firm</th>
<th>Project Role</th>
<th>Questions to be Answered</th>
</tr>
</thead>
</table>
| Nelson Nygaard Consulting Associates | Lead the overall project  
Lead all transit planning tasks | How should Southern Nevada’s HCT network be developed?                     |
| MIG                         | Lead land use planning and identify transit-oriented development opportunities | What land use changes could HCT stimulate?  
What land use changes could help support HCT? |
| Econorthwest                | Determine the impacts of land use changes                                   | If you develop HCT and enable land use changes, how much will things change? |
| Fehr & Peers                | Estimate transit demand                                                     | If you build it, how many will ride it?                                  |
| Purdue Marion & Associates | Lead civic engagement efforts                                               | What does the community want?  
What will the community support? |
| RTC                        |                                                                             |                                                                          |

Nelson/Nygaard Consulting Associates.
Other Similar Work: Nelson\Nygaard

- Fort Worth The T Transit Master Plan
- Phoenix Regional Transit Framework Study Update
- Portland High Capacity Transit Plan
- Seattle Transit Master Plan
- Denver Moves: Transit
- Boulder Transit Master Plan
- Salt Lake City Transit Master Plan
- Focus40 MBTA Transit Investment Plan (Boston)
- nMotion 2016 Nashville MTA/RTA Strategic Plan

Local Transit Work: Our Partners

MIG
- Southern Nevada Strong
- North Las Vegas Downtown Master Plan

ECONorthwest
- Southern Nevada Strong
- Maryland Parkway Opportunity Sites
- Maryland Parkway Implementation Plan

Purdue Marion
- Southern Nevada Strong

Fehr & Peers
- Downtown Las Vegas Master Plan
HCT Plan Development Simplified

1. Real and meaningful stakeholder involvement throughout the project
2. Articulate goals and objectives and evaluation framework
3. Identify the most promising HCT corridors
   - Determine underlying demand for transit - now and in 2040
   - Examine how emerging technologies could impact demand
4. Develop potential HCT strategies/options
   - Modes
   - Land use changes
5. Develop scenarios
6. Evaluate scenarios
7. Develop Recommendations
   Final Plan: Summer 2018

Primary HCT Modes

- Light Rail
- Bus Rapid Transit (BRT)
- Rapid Bus (BRT without exclusive bus lanes)
- Modern Streetcar
- Freeway BRT
- Commuter Rail
**Stakeholder Engagement**

- Create an identity
- Build stakeholder relationships
- Use tried and true and innovative tools
- Foster partnerships
- Reach diverse populations
- Garner media support

<table>
<thead>
<tr>
<th>METHOD</th>
<th>PHOTO</th>
<th>DESCRIPTION</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT ADVISORY COMMITTEE</td>
<td></td>
<td></td>
<td>Get meaningful input over life of project and provide advice over the life of the project.</td>
</tr>
<tr>
<td>STAKEHOLDER INTERVIEWS</td>
<td></td>
<td>One-on-one or small group interviews are conducted.</td>
<td>Get valuable feedback on project from key stakeholders.</td>
</tr>
<tr>
<td>WEB-BASED INTERACTION</td>
<td></td>
<td>Special website is developed for project.</td>
<td>Open to the public, allows for easy access to project info.</td>
</tr>
<tr>
<td>POP-UP EVENTS</td>
<td></td>
<td>Mobile project displays and interactive actions are conducted.</td>
<td>Provides opportunities for general public to interact with project and provide input.</td>
</tr>
<tr>
<td>PUBLIC MEETINGS</td>
<td></td>
<td>Scheduled meetings to present project information and solicit input.</td>
<td>Provides opportunities for general public to interact with project and provide input.</td>
</tr>
<tr>
<td>TRANSIT TALKS</td>
<td></td>
<td>Scripted presentations given by transit agency staff and community representatives.</td>
<td>Provides opportunities for general public to interact with project and provide input.</td>
</tr>
<tr>
<td>SOCIAL MEDIA</td>
<td></td>
<td>The use of social media to provide information and solicit input.</td>
<td>Increases public engagement among Millennials.</td>
</tr>
</tbody>
</table>

**SOUTHERN NEVADA HIGH CAPACITY TRANSIT PLAN**

- One-stop trip planning
- Better payment options
- Better information
- Autonomous transit
- Partnerships w/ ride-hailing services
- Impact of emerging technologies on transit demand
- New vehicle technologies
  - Modes
  - Propulsion

Nelson/Nygaard Consulting Associates.
SOUTHERN NEVADA HIGH CAPACITY TRANSIT PLAN

Schedule

Recent, Current, and Upcoming Activities

December
Held kickoff meetings
Held informal stakeholder committee meeting

January
Developing stakeholder engagement plan
Collecting data
Developing formal stakeholder committee

February
Will hold first formal Stakeholder Advisory Committee meeting in February 2017

Nelson/Nygaard Consulting Associates.
TECHNOLOGY RECAP

GO-NV SUMMIT
Item #7

RECEIVE AN UPDATE ON 2017 LEGISLATIVE SESSION

RTC Initiatives

- Enabling Legislation
  (Southern Nevada Forum)
- Public Private Partnerships (P3)
  (TIBP/Southern Nevada Forum)
- State Infrastructure Bank
  (TIBP/Southern Nevada Forum)
TRAC Initiatives

Transportation Interim Committee

Transportation Innovation Day

- Evening Reception,  
  Monday, March 13, 2017

- Transportation Innovation Day,  
  Tuesday, March 14, 2017
Revenue sources used in other communities to fund transit (directly, or through and integrated transportation and transit plan):

- Farebox revenue
- Sales Tax
- Fuel Tax
- Property Tax
- Impact Fees
- Tolls
- Room Tax
- Parking Fees
- Tax on Vehicle Values
- Registration Fees
- License Fees
- Motor Vehicle Excise Tax
Revenue Sources

The most common applications:

- Farebox revenue
- Sales Tax
- Fuel Tax
- Property Tax
- Federal funding
- State Funding

San Diego County, California
Metropolitan Transit System

The main revenue sources for MTS are sales taxes, farebox revenue, and federal assistance.

Funding Source Overview

- Federal:
  - 5307 Urban Area Formula Grants
  - 5311 Formula Grants for Rural Areas
  - 5337 State of Good Repair Funding
  - 5339 Bus and Bus Facilities Funding
- State:
  - Transportation Development Act = ¼% of sales tax assessed
  - State Transit Assistance (revenue from State Sales Tax on Diesel Fuel)
  - Proposition 18 Transit Security Grant Program
  - MediCal (funds paratransit routes)
- Local
  - Sales Tax
  - FasTrak Tolls
  - City of San Diego Maintenance of Effort funds
- Operating
  - Farebox
  - Advertisement
  - Rental and land management

2014 Funding Source Breakdown

Source: National Transit Database, Official Website
Phoenix Metro Area, AZ
Valley Metro Regional Public Transportation Authority

The main revenue sources for Valley Metro are sales taxes, federal assistance, and farebox revenues.

Funding Source Overview
- Federal:
  - 5307 Urbanized Area Formula Grants
  - 5309 Capital Investment Grants
  - 5337 State of Good Repair Funding
  - 5339 Bus and Bus Facilities Funding
  - CMAQ
  - TIGGER
- State:
  - State of Arizona Lottery Funds
- Local:
  - Sales Tax
  - Member City Funding (local sales tax)
- Operating
  - Farebox
  - Advertisement
  - Rental and land management

2014 Funding Source Breakdown

Salt Lake City and Surrounding Metro Area, Utah
Utah Transit Authority

The main revenue sources for UTA are sales taxes, federal assistance, and passenger revenues.

Funding Source Overview
- Federal:
  - Federal non-capital assistance funds
  - Federal O&M assistance
- State:
  - Supplemental State Sales and Use Tax
  - State funds
- Local:
  - Sales Tax
  - Motor Vehicle Registration
- Operating
  - Passenger Revenue
  - Advertisement
  - Investment Revenue

2014 Funding Source Breakdown
The RTC currently administers a common mix of sales tax and fuel tax revenues to fund roadway improvements.

The program is currently highly dependent on taxable fuel sales:
- Taxable fuel sales, while subject to economic cycles, have been relatively stable in the last decades.
- However, ongoing strategy needs to account for the rise of non-fuel operated vehicles.

A portion of annual revenues are also dedicated to pay bond debt service.

*As of July 1, 2016, amount represent the RTC’s share only; total gasoline indexed rate is 10¢/gallon.

### RTC Local Street & Highway Funding Sources

<table>
<thead>
<tr>
<th>Street &amp; Highway Funding Source</th>
<th>Current Levy</th>
<th>Annual Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Tax</td>
<td>9¢/gallon County MVFT</td>
<td>$66M</td>
</tr>
</tbody>
</table>
| Indexed Fuel Tax Revenue       | 8.8¢/gallon on gasoline*  
                                | 7.5-10¢/gallon on special fuel (amount vary across different fuels)* | $75M |
| Jet Aviation Fuel Tax          | 1¢/gallon | $3M |
| Sales and Use tax              | 0.125% on taxable revenue | $4.3M |

### Master Transportation Program: Other Local Funding Sources

The County also administers certain other taxes dedicated to transportation:
- Revenue generated from these taxes are used to fund projects in the County’s Master Transportation Program.

<table>
<thead>
<tr>
<th>Street &amp; Highway Funding Source</th>
<th>Current Levy</th>
<th>Annual Revenue</th>
<th>Projects Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room Tax</td>
<td>1% on taxable revenue</td>
<td>$50M</td>
<td>Resort Corridor Improvements</td>
</tr>
</tbody>
</table>
| Development Fees               | $800 / single family unit  
                                | $0.80 / square foot of commercial and industrial | $1.4M | Beltway construction and Improvements |
| Motor Vehicle Privilege Tax (MVFT) (Supplemental GST) | 1% on taxable revenue | $54M | Beltway construction and Improvements |
| Gas Tax                        | 3¢/gallon County MVFT | $22M | Street and highways maintenance |
RTP Other Funding Sources

• In addition to local taxes administered by the RTC and the County, the Regional Transportation Plan ("RTP") is supported by a wide mix of federal, state and private funding

| Federal Highway Programs (Statewide funds identified for projects in Southern Nevada) |
| NHS |
| STP (Statewide) |
| Earmarks and Discretionary Programs |
| Safety Programs |
| Enhancements and Alternatives |

| Federal Highway Program Funds allocated to Southern Nevada |
| CMAQ |
| STP (Clark) |

| State Funding |
| State Gas Tax |
| State Bond Proceeds |
| Governmental Services Tax |

| Private Funding |
| Las Vegas Monorail Corp. |
| Private Developer exactions and contributions |

Overview of Funding Options

Common transportation funding sources fit into one of the following categories based on how the fee is collected

1. **User Fee and Tax:**
   Based on direct or indirect use of transportation infrastructure

2. **Specialized Tax:**
   Based on non-transportation activities, but dedicated to transportation

3. **General Tax:**
   Based on and used for broad purposes, of which transportation may be one
Transportation Funding Sources

User Fee and Tax

Fuel Tax:
- Motor Vehicle Fuel Tax
- Taxes on Alternative Fuel
- Fuel Tax Indexing

Vehicle Fees:
- Registration Fees
- Excise Tax on Vehicles / Vehicle Sales
- Governmental Services Tax (MVPT)
- Annual fee on Alternative Fuel Vehicles and Electric Vehicles

Alternative Taxation of Vehicles:
- Vehicle Miles Traveled
- Weight-Distance Tax
- Parking Fees
- Car Rental Tax
- Tire Tax

Tolling:
- Existing Roads / New Roads
- High-Occupancy Toll Lanes

Transportation Funding Sources

Specialized Tax

Sales Tax:
- New Increment of sales tax

Hotel Room Tax
- System-Wide
- Within a Specially Benefitting Area

Value Capture:
- Special Improvement/Assessment Districts
- Tax Increment

Impact Fees:
- Development Fees (in areas served by new infrastructure)
- Development Agreements
Transportation Funding Sources

General Tax and Other

Property Tax:
- Governmental Services Tax (Personal Property Tax) - currently at constitutional limit
  - System-Wide
  - Within a Special Area

Employment/Payroll Tax:
- Fixed charge per employee
- Variable charge by payroll

Other
- Private Equity

Common Evaluation Criteria for Potential Funding Sources

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>• Yield</td>
</tr>
<tr>
<td></td>
<td>• Adequacy</td>
</tr>
<tr>
<td></td>
<td>• Stability / Predictability</td>
</tr>
<tr>
<td>Cost efficiency</td>
<td>• Administrative cost to RTC</td>
</tr>
<tr>
<td></td>
<td>• Compliance costs to taxpayers</td>
</tr>
<tr>
<td>Equity</td>
<td>• Fairness of cost burden across income groups</td>
</tr>
<tr>
<td></td>
<td>• Fairness across geographic locations</td>
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<tr>
<td>Economic efficiency</td>
<td>• Pricing efficiency (demand vs supply)</td>
</tr>
<tr>
<td></td>
<td>• Impacts to society and environment</td>
</tr>
<tr>
<td>Acceptability</td>
<td>• Political acceptability</td>
</tr>
<tr>
<td></td>
<td>• Local popularity</td>
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<tr>
<td>Feasibility</td>
<td>• Administrative</td>
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<td>• Technical</td>
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Item #9

DISCUSS TRAC NEXT STEPS

Item #10

OPEN DISCUSSION
Item #11

FINAL CITIZENS PARTICIPATION