LTRC / DOTD Experience and Involvement with University Transportation Centers

AASHTO RAC Meeting
Santa Fe, NM
July 22-25, 2019

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Mary Leah Coco, Ph.D.
Outline

- Participation
  - Historical
  - Mechanism(s)
- Project selection
- Project closeout
- Implementation of results
- T^2 and education
- Case study
  - ROI
UTC Participation

- **Regional**
  - Southern Plains Transportation Consortium (SPTC)
  - Transportation Consortium of South-Central States (Tran-SET)

- **Tier 1**
  - National Center for Intermodal Transportation and Economic Competitiveness (NCITEC)
  - Mid-America Transportation Center (MATC)
  - Maritime & Multimodal Transportation Research and Education Center (MarTREC)
  - Cooperative Mobility for Competitive Megaregions (CM2)
UTC Participation

- Letter of support
  - Monetary amount (combination of in-kind and cash)
  - Only on projects of interest to DOTD
  - Universities give ½ of IDC and 1 month release time
  - DOTD covers remaining cost share
    - Cash or in-kind services
UTC Project Selection

- Method 1
  - LTRC annual work program priority list
  - Drawback – has to fit the UTC objectives / mission

- Method 2
  - Choose from ranked UTC problem statements
  - Drawback – may not be of interest to DOTD

- Method 3 (last resort)
  - Give alternate project funded solely by DOTD meeting objectives / mission
UTC Project Closeout

- LTRC Manual of Research Procedures
  - Final Report (LTRC cover page)
  - Research Assessment Implementation Report (RAIR)
  - Implementation team
UTC Results Implementation

- DOTD interest
  - Seamless and smooth
  - Products / deliverables presented with training
- LTRC assists with pilot projects
  - DOTD
  - Locals
UTC $T^2$ and Education

- **Dedicated publications group**
  - Technology Today articles
  - Technical Summaries (2 page maximum)
  - Videos

- **Encourage research articles**
  - Research Pays Off, Roads and Bridges, etc.

- **LTRC Seminar Series**
  - Presentations of results, field trials, lessons learned, etc.
Case Study - NCITEC

- Participated through Louisiana State University
- Projects were selected using Method 1 – research priority list
  - 7 funded in Year 1
  - 5 funded in Year 2
# Case Study – NCITEC (Year 1 Projects)

<table>
<thead>
<tr>
<th>PRIORITY</th>
<th>TITLE OF PROJECT</th>
<th>PRINCIPAL INVESTIGATOR</th>
<th>TOTAL FUNDS</th>
<th>UTC FUNDS</th>
<th>UNIVERSITY MATCH</th>
<th>LTRC CASH MATCH</th>
<th>LTRC/LADOTD STAFF TIME AS MATCH</th>
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</thead>
<tbody>
<tr>
<td>HIGH</td>
<td>The Impact of Modifying Jones Act on the US Domestic Shipping</td>
<td>Asaf Ashar</td>
<td>$185,219</td>
<td>$92,168</td>
<td>$58,168</td>
<td>$34,000</td>
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<tr>
<td>HIGH</td>
<td>Improving Freight Crash Incident Management</td>
<td>Chester Wilmot</td>
<td>$143,201</td>
<td>$76,346</td>
<td>$25,346</td>
<td>$51,000</td>
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<tr>
<td>HIGH</td>
<td>Development of a Tool for Documenting, Tracking, Recording and Analyzing Improvements to Intersection Sites and Roadway Departures in Curve Locations</td>
<td>Helmut Schneider</td>
<td>$215,660</td>
<td>$67,660</td>
<td>$106,000</td>
<td>$42,000</td>
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<td>HIGH</td>
<td>Development of Minimum Requirements for Local Growth Management Policies</td>
<td>John Renne</td>
<td>$282,076</td>
<td>$141,321</td>
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<tr>
<td>HIGH</td>
<td>Development of Performance Measurement for Freight Management</td>
<td>Peter Kelle</td>
<td>$150,870</td>
<td>$74,768</td>
<td>$62,768</td>
<td>$12,000</td>
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<tr>
<td>HIGH</td>
<td>Administration - Part 1</td>
<td>Skip Paul</td>
<td>$42,194</td>
<td>$42,194</td>
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<td>HIGH</td>
<td>Administration - Part 2</td>
<td>Skip Paul</td>
<td>$41,618</td>
<td>$20,809</td>
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<tr>
<td>MEDIUM</td>
<td>Economic Impact Analysis of Short Line Railroads</td>
<td>Jared Llorens</td>
<td>$111,244</td>
<td>$51,505</td>
<td>$38,505</td>
<td>$13,000</td>
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<tr>
<td>MEDIUM</td>
<td>Developing a Highway Safety Fundamentals Course</td>
<td>Xiaoduan Sun</td>
<td>$50,780</td>
<td>$25,316</td>
<td>$16,816</td>
<td>$8,500</td>
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<td>LSU F&amp;A on subcontracts to UNO &amp; ULL</td>
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<td>$15,826</td>
<td>$7,913</td>
<td>$7,913</td>
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<tr>
<td><strong>TOTALS</strong></td>
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<td>$1,238,688</td>
<td>$600,000</td>
<td>$405,837</td>
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# Case Study – NCITEC (Year 2 Projects)

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<tr>
<th>TITLE OF PROJECT</th>
<th>PRINCIPAL INVESTIGATOR</th>
<th>TOTAL FUNDS</th>
<th>UTC FUNDS</th>
<th>UNIVERSITY MATCH</th>
<th>LTRC CASH MATCH</th>
<th>LTRC/LADOTD STAFF TIME AS MATCH</th>
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<tr>
<td>Administration</td>
<td>Skip Paul</td>
<td>$ 78,948</td>
<td>$ 39,448</td>
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<td>$ -</td>
<td>$ 39,500</td>
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<td>ITS Video Detection Technology for Traffic Counting</td>
<td>Sherif Ishak</td>
<td>$ 199,992</td>
<td>$ 99,996</td>
<td>$ 59,996</td>
<td>$ 40,000</td>
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<td>Travel Time Estimation in Urban Areas Using Bluetooth Receivers</td>
<td>Chester Wilmot</td>
<td>$ 279,954</td>
<td>$139,977</td>
<td>$ 27,000</td>
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<td>$ 112,977</td>
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<td>A Simulation Model for Intermodal Freight Transportation in the State of Louisiana</td>
<td>Peter Kelle</td>
<td>$ 207,360</td>
<td>$103,680</td>
<td>$ 62,680</td>
<td>$ 41,000</td>
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<td>Drugged Driving in Louisiana: Quantification of its Impact on Impaired Driving crashes and deaths and the Legal, Enforcement and Public Health Implications and Potential Strategies</td>
<td>Helmut Schnider</td>
<td>$ 258,798</td>
<td>$129,399</td>
<td>$ 78,399</td>
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<td>$ 51,000</td>
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<td>Development of an Optimal Ramp Metering Control Strategy for I-12</td>
<td>Sherif Ishak</td>
<td>$ 175,000</td>
<td>$ 87,500</td>
<td>$ 52,500</td>
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<tr>
<td><strong>TOTALS</strong></td>
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<td><strong>$ 1,200,052</strong></td>
<td><strong>$ 600,000</strong></td>
<td><strong>$ 280,575</strong></td>
<td><strong>$ 167,000</strong></td>
<td><strong>$ 152,477</strong></td>
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Case Study – NCITEC Return on Investment

- **Total Funds**: $2,438,740
- **UCT Funds**: $1,200,000
- **University Match**: $686,412
- **LTRC Cash Match**: $378,500
- **DOTD Time Match**: $215,480

**ROI** = \((\text{Total Funds} - \text{LTRC Cash}) / \text{LTRC Cash}\)

- **ROI**: 544%
Case Study – NCITEC Return on Investment

- Total Funds: $2,438,740
- UCT Funds: $1,200,000
- University Match: $686,412
- LTRC Cash Match: $378,500
- DOTD Time Match: $215,480

ROI = (Total Funds - LTRC Cash – Time Match)/(LTRC Cash + Time)

- 312%