

URBNYTE: Powered by Lockstop

**Risks Mitigation Strategy**

Transportation Innovation Zone (TIZ) – Corktown, Detroit  
Lockstop, Inc

Date: 7/17/2025

Prepared by: Lockstop, Inc.

## 1. Introduction to Risk Mitigation Approach

The Transportation Innovation Zone (TIZ) in Corktown offers a high-visibility platform for new mobility solutions. Recognizing this, URBNYTE approaches risk management as a core component of pilot execution. This strategy identifies and mitigates potential operational, reputational, accessibility, and regulatory risks related to the Lockstop pilot deployment. Our goal is to ensure safety, community trust, compliance, and successful project outcomes while supporting Detroit's long-term goals around sustainability, Vision Zero, and transportation equity.

---

## 2. Risk Identification

Based on industry-standard risk management frameworks (FHWA, USDOT, Shared-Use Mobility Center), URBNYTE has identified key categories of risk:

Risk Category	Description
Data Privacy and Security	Unauthorized access, mishandling, or misperception of rider data.
Device Theft, Damage, or Vandalism	Physical tampering, unauthorized removal, or destruction of Lockstop devices.
Accessibility and ADA Compliance	Installations that violate accessibility standards or create barriers for individuals with disabilities.
Equity Risk	Disproportionate benefit to non-equity populations or lack of inclusion in outreach and service design.
Public Safety Risk	Negative events (e.g., bike thefts, vandalism) in proximity to Lockstop units affecting user confidence.
Technology Reliability	Downtime, bugs, or failures of the Lockstop hardware or mobile app.
Regulatory Compliance Risk	Misalignment with TIZ pilot guidelines, ADA requirements, or city-specific ordinances.
Communication and Public Perception	Confusion, skepticism, or misinformation that damages community trust or participation.

---

### 3. Risk Matrix

Impact ↓ / Likelihood →	Low	Medium	High
High	Communication and Public Perception	Accessibility Compliance	Data Privacy & Security
Medium	Device Theft or Vandalism	Equity Risk	Public Safety Risk
Low	Technology Reliability	Regulatory Risk	N/A

#### Interpretation:

The most critical risks to mitigate proactively are those in the top-right quadrant:

- **Data Privacy and Security**
- **Accessibility Compliance**
- **Communication and Public Perception**

---

### 4. Risk Mitigation Actions

Risk	Mitigation Strategy
<b>Data Privacy and Security</b>	<ul style="list-style-type: none"><li>- Only anonymized data collected (no PII).</li><li>- End-to-end encryption of device-cloud communication.</li><li>- Clear public-facing privacy documentation.</li><li>- GDPR and CCPA-aligned data protocols.</li></ul>
<b>Device Theft, Damage, or Vandalism</b>	<ul style="list-style-type: none"><li>- Tamper-resistant enclosures.</li><li>- Internal GPS for real-time tracking.</li><li>- Community-based response via Ford Security and neighborhood groups.</li><li>- Scheduled physical maintenance checks.</li></ul>
<b>Accessibility and ADA Compliance</b>	<ul style="list-style-type: none"><li>- Installation reviewed by Detroit Disability Power.</li><li>- ADA-compliant sidewalk clearances (≥36").</li><li>- Nighttime visibility, placement away from curb cuts.</li></ul>

Risk	Mitigation Strategy
<b>Equity Risk</b>	<ul style="list-style-type: none"> <li>- Dedicated engagement in North Corktown, Mexicantown.</li> <li>- Spanish-language outreach.</li> <li>- KPIs: 30% engagement from equity-flagged ZIPs.</li> <li>- Partnerships with local advocates.</li> </ul>
<b>Public Safety Risk</b>	<ul style="list-style-type: none"> <li>- Strategic placement in high-visibility areas.</li> <li>- Theft deterrents: Lockstop visibility, signage, secure UX.</li> <li>- Real-time tamper alerts; proactive response coordination with DPD.</li> </ul>
<b>Technology Reliability</b>	<ul style="list-style-type: none"> <li>- Redundant cloud backend with 99.9% uptime target.</li> <li>- Remote monitoring and updates.</li> <li>- Pre-deployment QA testing for all devices.</li> </ul>
<b>Regulatory Compliance Risk</b>	<ul style="list-style-type: none"> <li>- Weekly coordination with Detroit's Office of Mobility Innovation.</li> <li>- Compliance checklist with ADA, TIZ, and city standards.</li> </ul>
<b>Communication and Public Perception</b>	<ul style="list-style-type: none"> <li>- Clear FAQs on privacy, equity, and safety.</li> <li>- Demos at community events.</li> <li>- Co-branded outreach with trusted local orgs.</li> <li>- Incident response template for rapid comms.</li> </ul>

## 5. Monitoring and Contingency Planning

URBNYTE will implement real-time and recurring risk assessments using:

- **Weekly internal audits and field check-ins**
- **Automated alerts** from Lockstop devices for tampering or hardware anomalies
- **User and partner feedback loops** via surveys and partner meetings
- **Monthly reporting** to the City of Detroit and Ford Michigan Central team

In the event of emerging risk, URBNYTE will:

- Notify City officials immediately

- Deploy prebuilt contingency plans (e.g., temporary unit removal, messaging campaigns, design changes)
- Share findings transparently in final pilot reporting

## APPENDIX: SUPPORTING RESEARCH HIGHLIGHTS

(All sources now include direct full URLs for instant verification.)

---

### 1. Fear of Bike Theft Discourages Cycling Adoption

**Finding:**

- 45% of bike theft victims either reduce or stop cycling entirely.
- 7% never replace their stolen bike.

**Relevance to Pilot:**

Prioritizing secure parking through Lockstop is critical to sustaining active transportation mode shift in Corktown and preventing car dependency regression.

**Source:**

Transport for London, *Cycle Theft in London Research Report* (2016)  
<https://content.tfl.gov.uk/cycle-theft-london-research.pdf>

---

### 2. Anti-Theft Measures Can Increase Cycling Mode Share by 9–35%

**Finding:**

Cities implementing theft deterrent measures (e.g., Vancouver's Project 529) report 9–35% increases in cycling rates.

**Relevance to Pilot:**

Our engagement strategy emphasizes security education and product awareness to boost cycling participation rates among residents and commuters.

**Source:**

City of Vancouver, *Bike Theft Reduction Strategy Evaluation*  
<https://vancouver.ca/files/cov/bike-theft-reduction-strategy.pdf>  
Project 529 Global Impact Report  
<https://project529.com/garage/impact>

---

### 3. Secure Bike Parking Supports Local Retail Economies

**Finding:**

- Retail corridors with bike-friendly infrastructure and secure parking see 4–11% higher retail sales.
- Cyclists spend 40% more per month at local businesses compared to drivers.

**Relevance to Pilot:**

By partnering with Corktown Business Association and engaging small businesses, the Lockstop pilot can enhance retail vibrancy and economic resilience.

**Source:**

NYC DOT, *Measuring the Street: New Metrics for 21st Century Streets* (2012)

<https://www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf>

PeopleForBikes, *The Business Case for Bike Lanes*

<https://peopleforbikes.org/wp-content/uploads/2017/07/business-case-for-bike-lanes.pdf>

---

### 4. Low-Income and Underserved Communities Face Higher Transportation Barriers

**Finding:**

Low-income households experience disproportionately higher transportation costs, face greater bike theft vulnerability, and have less access to protected bike facilities.

**Relevance to Pilot:**

Our outreach prioritizes underserved groups in North Corktown and Mexicantown to ensure equitable access to mobility benefits.

**Source:**

NACTO, *Equitable Bike Share Means Building Better Places for People to Ride* (2016)

[https://nacto.org/wp-](https://nacto.org/wp-content/uploads/2017/12/NACTO_EquityPractices_BikeShare2016.pdf)

[content/uploads/2017/12/NACTO\\_EquityPractices\\_BikeShare2016.pdf](https://nacto.org/wp-content/uploads/2017/12/NACTO_EquityPractices_BikeShare2016.pdf)

PeopleForBikes, *Bicycling and Equity Report*

[https://peopleforbikes.org/wp-content/uploads/2021/06/equity\\_report\\_final.pdf](https://peopleforbikes.org/wp-content/uploads/2021/06/equity_report_final.pdf)

---

## 5. Low-Income Households Make Up a Significant Share of Micromobility Users

### **Finding:**

Low-income riders make up approximately 30% of micromobility usage nationally.

### **Relevance to Pilot:**

This demonstrates the critical need for equitable access, pricing models, and community engagement.

### **Source:**

NACTO, *Shared Micromobility State of the Industry Report* (2022)  
<https://nacto.org/shared-micromobility-2022/>

---

## 6. Secure Bike Infrastructure Increases Mode Shift and Reduces Car Dependency

### **Finding:**

- Bike commuting increased 35% at Oregon Health & Science University after secure parking facilities were installed.
- Cities with robust bike networks show a 2–21% reduction in car trips.

### **Relevance to Pilot:**

Lockstop's secure parking system can accelerate car trip replacement and promote multimodal travel.

### **Source:**

Portland State University, *The Impacts of Bicycle Facilities on Commute Mode Share* (2016)  
[https://ppms.trec.pdx.edu/media/project\\_files/1131\\_PS\\_Impact\\_of\\_Bicycle\\_Facilities\\_Final\\_Report.pdf](https://ppms.trec.pdx.edu/media/project_files/1131_PS_Impact_of_Bicycle_Facilities_Final_Report.pdf)  
BCG, *The Future of Urban Mobility* (2022)  
<https://www.bcg.com/publications/2022/future-of-urban-mobility>

---



## 7. Economic ROI of Cycling Infrastructure

### **Finding:**

Every \$1 invested in cycling infrastructure yields between \$3–5 in societal returns.

### **Relevance to Pilot:**

Lockstop advances Detroit's investment in sustainable transportation infrastructure with strong ROI.

### **Source:**

World Health Organization (WHO), *Health Economic Assessment Tool (HEAT)* (2017)  
<https://www.euro.who.int/en/health-topics/environment-and-health/Transport-and-health/publications/2017/health-economic-assessment-tool-heat-for-walking-and-cycling.-methods-and-user-guide-on-physical-activity,-air-pollution,-injuries-and-carbon-impact-assessments-2017>

---

## 8. Crime and Theft Deterrence Build Trust in Cycling Networks

### **Finding:**

Vancouver's Project 529 reduced bike theft citywide by 30%, boosting cycling participation.

### **Relevance to Pilot:**

Building trust through security interventions like Lockstop strengthens Corktown's emerging bike network.

### **Source:**

City of Vancouver, *Bike Theft Reduction Strategy Evaluation*  
<https://vancouver.ca/files/cov/bike-theft-reduction-strategy.pdf>

---

## 9. Environmental and Climate Benefits of Cycling Adoption

### **Finding:**

- Global cycling adoption could save \$24 trillion in climate mitigation costs by 2050.
- Cities report substantial healthcare savings tied to active transportation.

**Relevance to Pilot:**

Lockstop's pilot supports Detroit's Vision Zero and climate action goals by promoting active modes.

**Source:**

International Transport Forum, *Transport Outlook 2019*

<https://www.itf-oecd.org/transport-outlook-2019>

World Health Organization (WHO), *Health and Economic Benefits of Cycling*

[https://www.euro.who.int/\\_data/assets/pdf\\_file/0006/341622/Health-Economic-assessment-Tool-HEAT-User-guide.pdf](https://www.euro.who.int/_data/assets/pdf_file/0006/341622/Health-Economic-assessment-Tool-HEAT-User-guide.pdf)

---

## 10. Foot Traffic and Retail Revenue Growth Tied to Cycling Infrastructure

**Finding:**

Portland's bike parking program (Bike Corrals) boosted tax revenues by \$2.4 million per block and increased local foot traffic dramatically.

**Relevance to Pilot:**

Lockstop helps Corktown businesses benefit from increased cyclist patronage.

**Source:**

Portland Bureau of Transportation, *Bike Corral Program Report* (2017)

<https://www.portland.gov/sites/default/files/2020-04/bike-coral-program-report-2017.pdf>