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TO: LDFA Board
FROM: Joshua Baron, IT Director, City of Ann Arbor
SUBJECT: Status of Private LTE Network Implementation
DATE: 9/22/2025

The MEDC and the LDFA Board approved the use of remaining Technology Park project funds to implement a Private LTE (CBRS-based) network in the Downtown Development Authority (DDA) district. The proposed design includes 8 radios on parking garages, connections into the city's Technology Park fiber backbone, three UCS servers in the city data center, and initial purchase of 50 SIM cards.

The stated goals include enabling smart city infrastructure (streetlights, cameras, traffic management, parking systems, connected vehicles, environmental sensors), supporting research and development, and complementing the city's Smart City Strategic Plan.

Pros of Private LTE

1. Future-Ready Infrastructure

- Extends the city's \$9M fiber investment by adding a secure wireless layer.
- SIM-based LTE offers better security, coverage, and Quality of Service (QoS) than public Wi-Fi.

2. Smart City Enablement

- Supports traffic sensors, public safety cameras, fleet connectivity, parking management, and event operations (e.g., Art Fair).
- Aligns with the Smart City Strategic Plan for IoT expansion.

3. Research & Innovation

- University of Michigan ITS supports deployment for connected vehicle research and IoT testing.
- Positions downtown as a living lab to attract grants and startups.

4. Digital Equity Potential (Conditional)

- Could, in theory, deliver fixed wireless broadband to underserved populations if paired with a retail service provider.
- Similar models were used in Tucson and Syracuse.

5. City Control

- Local management ensures data ownership, governance, and integration with city IT security.
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Cons & Risks

1. Unclear Demand / Adoption Risk

- No confirmed early-use commitments from departments or agencies.
- Network risks being underutilized if devices are not onboarded quickly.



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2. Ongoing Costs

- Grant covers three years; ongoing operations, licensing, and SIM management will shift to the city.
- IT staff will need to absorb management responsibilities.

3. Overlap with Carrier Services

- LTE/5G already available via Verizon, AT&T, and FirstNet.
- Private LTE must demonstrate advantages in cost, control, or capability.

4. Technical Complexity

- Running a cellular core requires expertise: SIM lifecycle, SAS licensing, network monitoring, 24/7 reliability.

5. Precedent Risks

- Some municipal CBRS pilots (e.g., Yonkers, NY) failed due to poor adoption.
- Success stories (Tucson, Longmont, Las Vegas) had clear early drivers: student broadband, safety cameras, or traffic systems.

6. Digital Divide Claim Is Weak

- The proposed coverage map focuses on downtown, where residents are generally higher-income and already well-served by commercial ISPs.
- This does not align with where the city's digital divide challenges are most acute (low-income neighborhoods and public housing).
- Without a strategy to extend coverage or distribute devices, equity claims remain unsupported.

7. Regulatory Limitation (METRO Act)

- Under the Michigan Telecommunications (METRO) Act, the city cannot directly "light" this network to provide retail internet service.
- At best, the city would need to partner with a qualified ISP or nonprofit provider to deliver residential access.
- Without such a partner, the network will be limited to municipal operations and research use cases.

Real-World Examples

- **Las Vegas, NV:** Private 5G powers public safety cameras, traffic management, and digital inclusion programs.



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- **Tucson, AZ:** Started as student broadband, now supports traffic lights, water utilities, and first responders.
- **Longmont, CO:** Combined fiber + CBRS to expand downtown camera grid and smart city services.
- **Yonkers, NY:** CBRS pilot for student broadband was discontinued due to low uptake and high costs.

Recommendations

1. **Pilot Before Scaling**
 - Deploy a small subset (2–3 radios, 10–20 SIMs) focused on defined use cases: downtown safety cameras, Art Fair operations, AAATA bus telemetry.
2. **Departmental Commitments**
 - Work with the various city departments and partners to define IoT use cases for the next 24 months.
3. **Cost-Benefit Analysis**
 - Compare private LTE costs with alternatives: carrier LTE plans, FirstNet, Wi-Fi mesh, or LoRaWAN for each use case.
4. **Success Criteria**
 - Define clear adoption and performance metrics: number of active devices, coverage reliability, reduced operating costs, improved service delivery.
5. **Governance & Sustainability**
 - Establish IT governance for SIM provisioning, cybersecurity, monitoring, and 24/7 support.
 - Create a sustainability plan for funding beyond year three.
 - If equity outcomes are a goal, identify and secure a partner ISP to legally and operationally deliver broadband service.

Conclusion

A Private LTE network can deliver value if tied to concrete, near-term use cases. Without strong adoption planning, it risks becoming an underutilized asset. I recommend proceeding with a phased pilot program tied to specific departmental needs, coupled with exploration of an ISP partnership if digital equity remains a strategic priority.