From Theory To Practice

What can we learn from our U.S. experience?

Transportation Research Board

Annual Meeting

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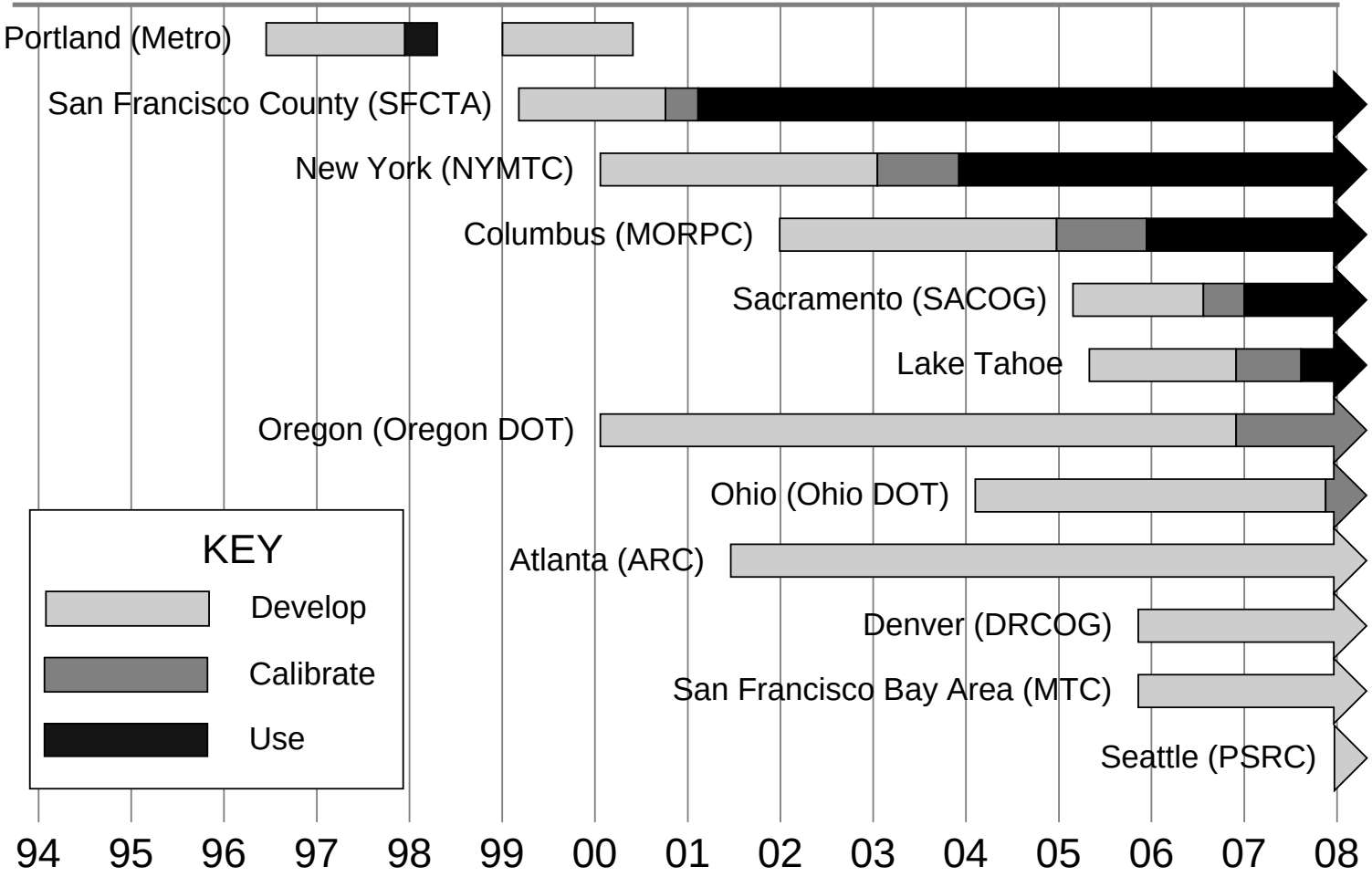
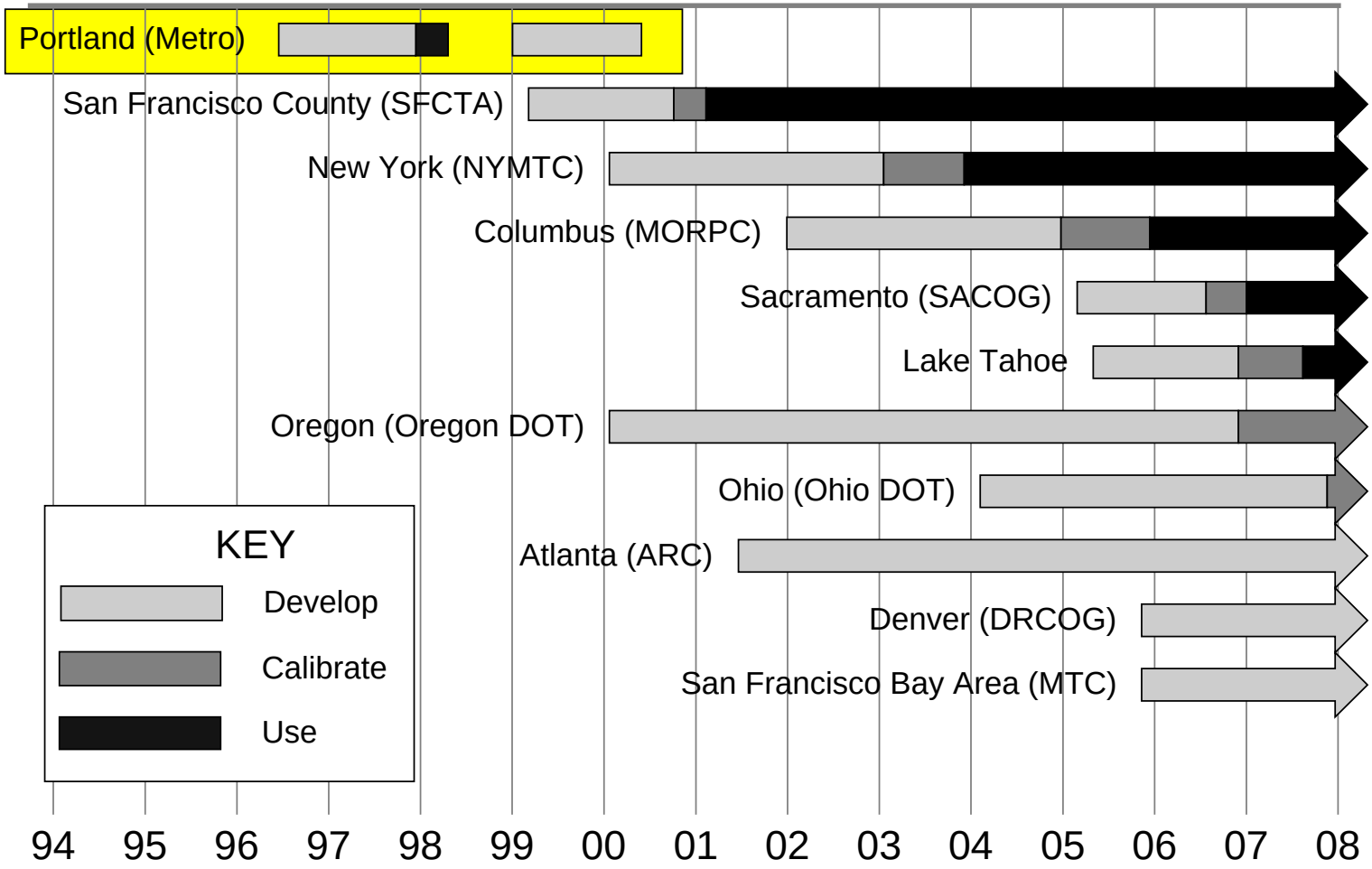
Objective

- A quick look at innovations implemented since 1995
- Why?
  - What made them happen?
  - Why are some not used?

The Projects



The Projects



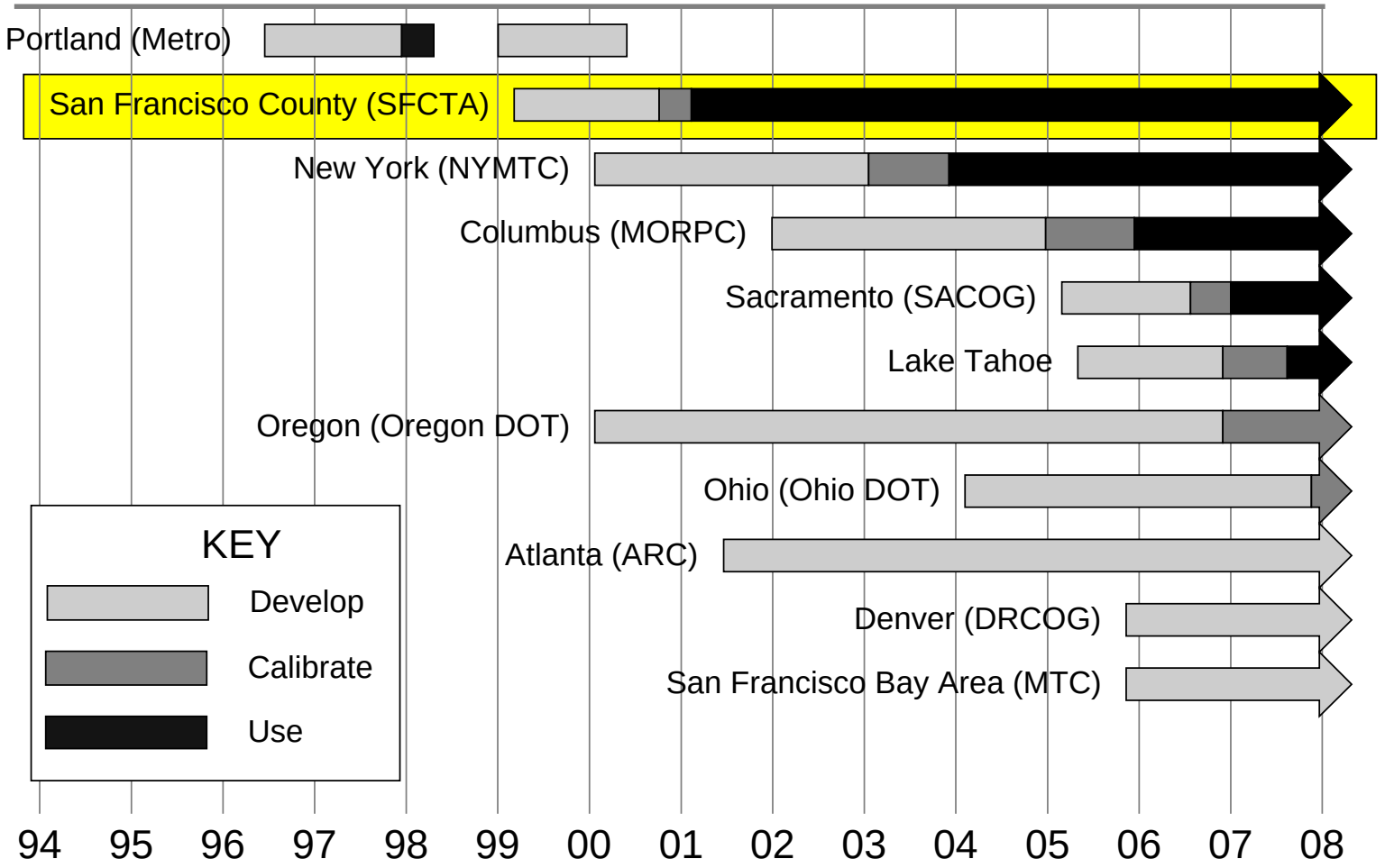
1997: Metro Innovations

- Activity Schedule Approach
  (Bowman & Ben-Akiva)
  - Model entire day of person
  - Full Day Activity Pattern
  - Conditional tour models (dest, mode, TOD)
  - Integration via Tour Logsums

Metro Innovations (cont'd)

- Features not in MIT prototype
  - Detailed activity purposes (8)
  - Detailed spatial resolution (block face)
  - Usual work and school location
  - Work-based subtours
  - At-home activities
  - Intermediate stops on tours
  - Integration with assignment models
- Used model for policy analysis

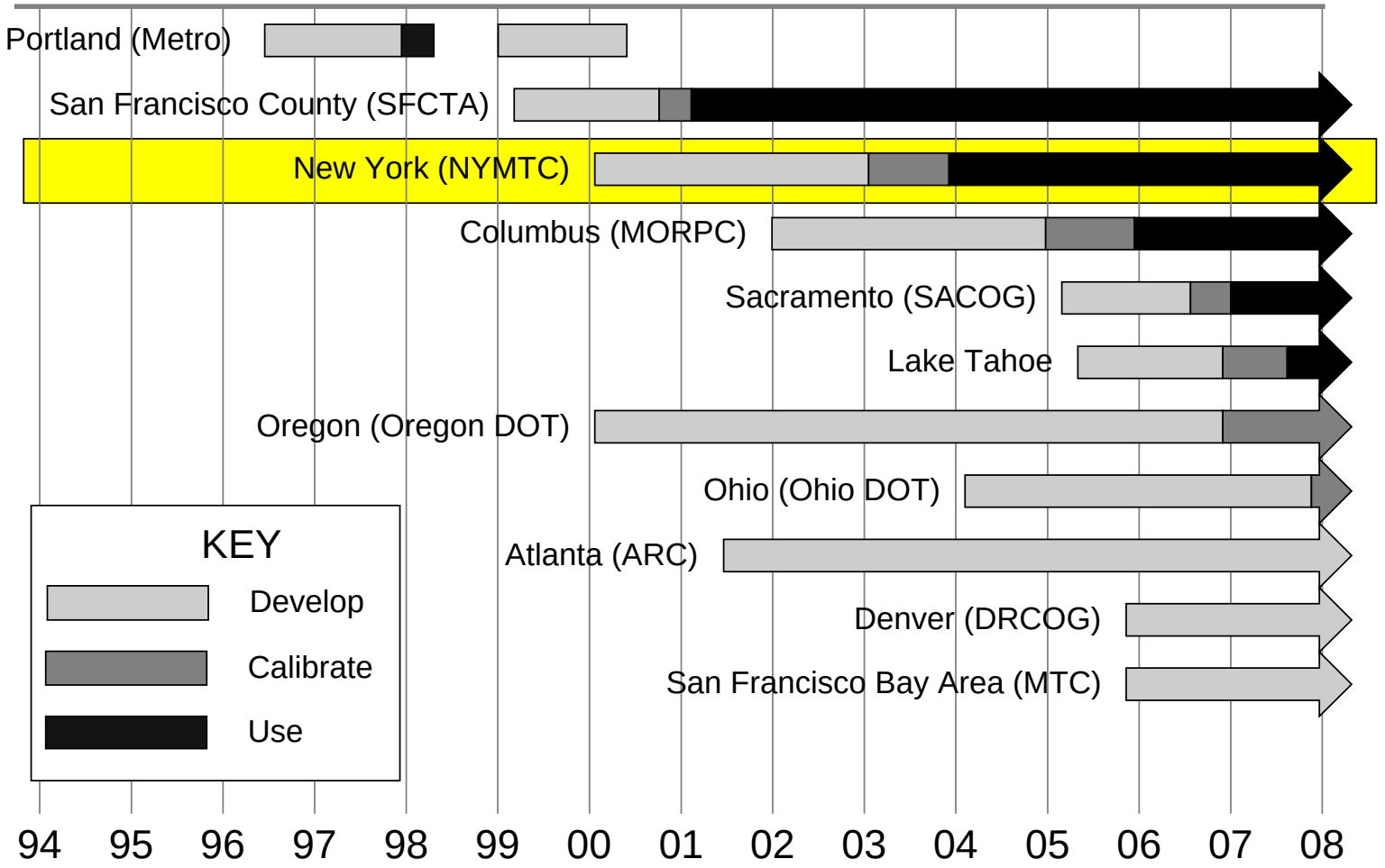
The Projects



2000: SFCTA Innovations

- Ongoing use for policy analysis
  - Development Impact Analysis
  - Countywide Transportation Plan
  - Central Subway New Starts
  - Equity analysis
  - Many more
- User benefits calculation for New Starts (SUMMIT) analysis

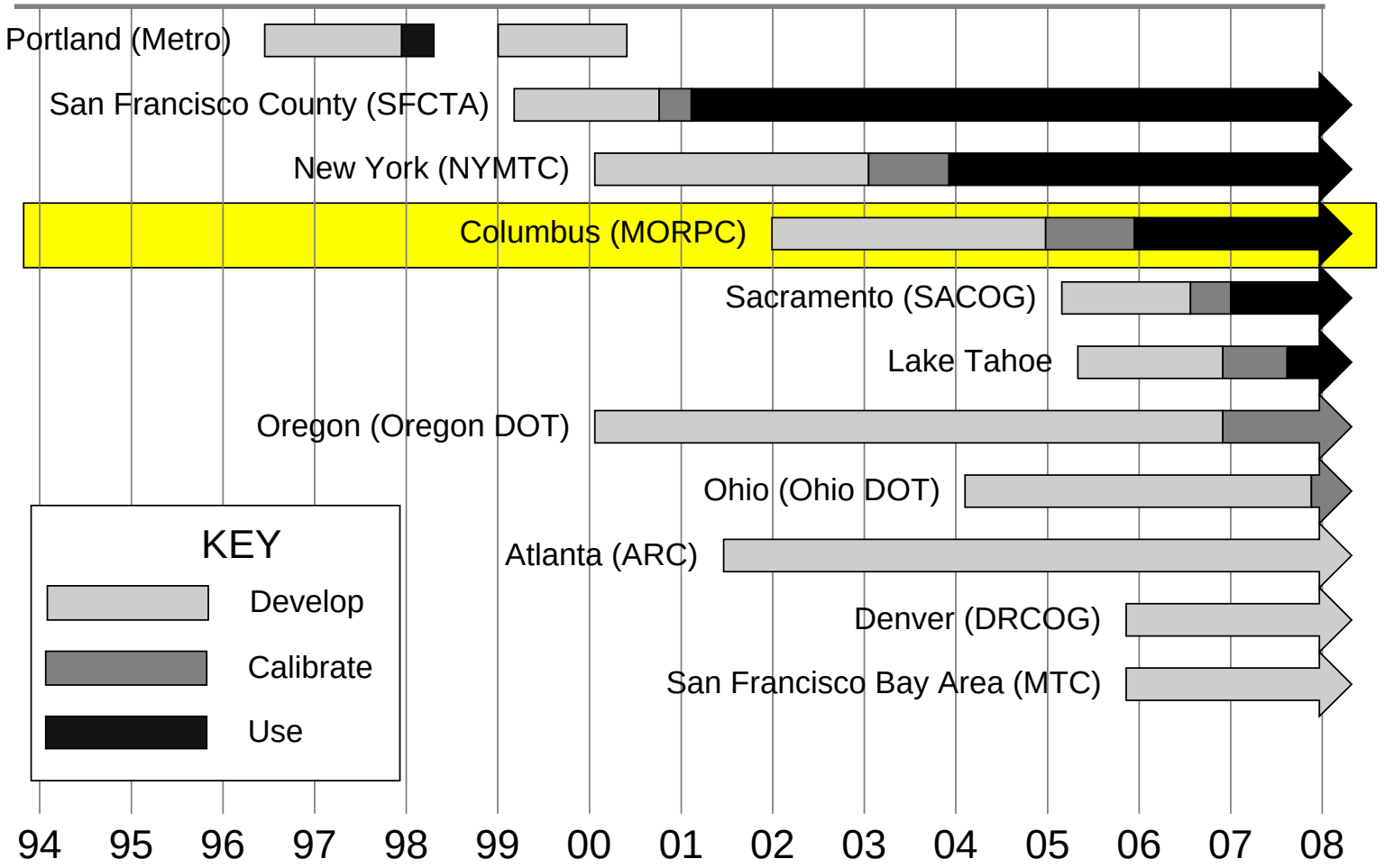
The Projects



2002: NYMTC Innovations

- Tour-based microsimulation
  - Inter-tour dependence
  - Intra-household dependence
- Innovative analyses
  - E.g. pricing studies not possible with 4-step model

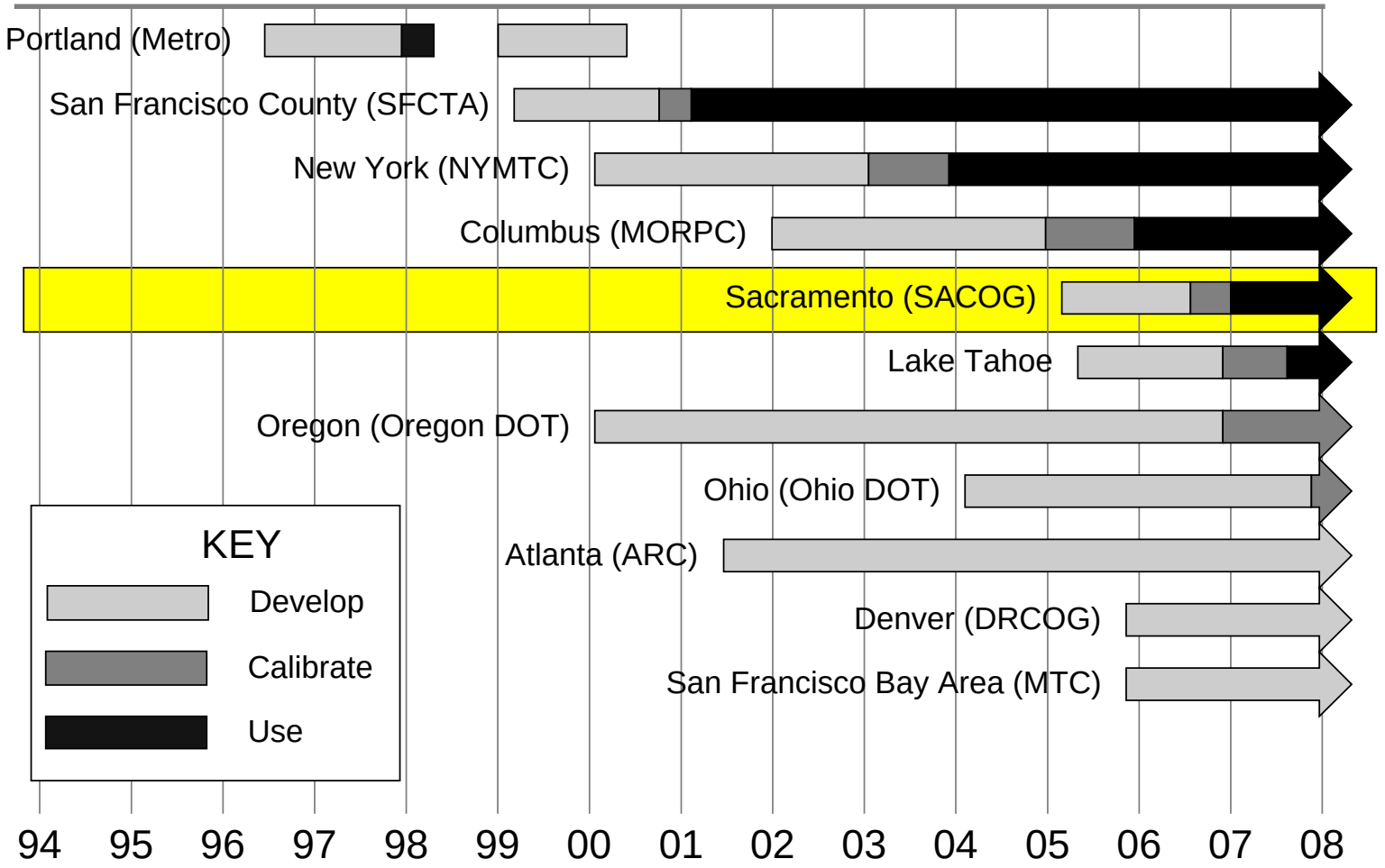
The Projects



2004: MORPC Innovations

- Intra-household interactions
  - HH activity pattern
  - joint tours
  - HH maintenance activities
- Detailed time resolution (1 hr)
- Enhanced New Starts methods
- Multithreaded software
- Parking choice sub-model
- Free-parking eligibility model

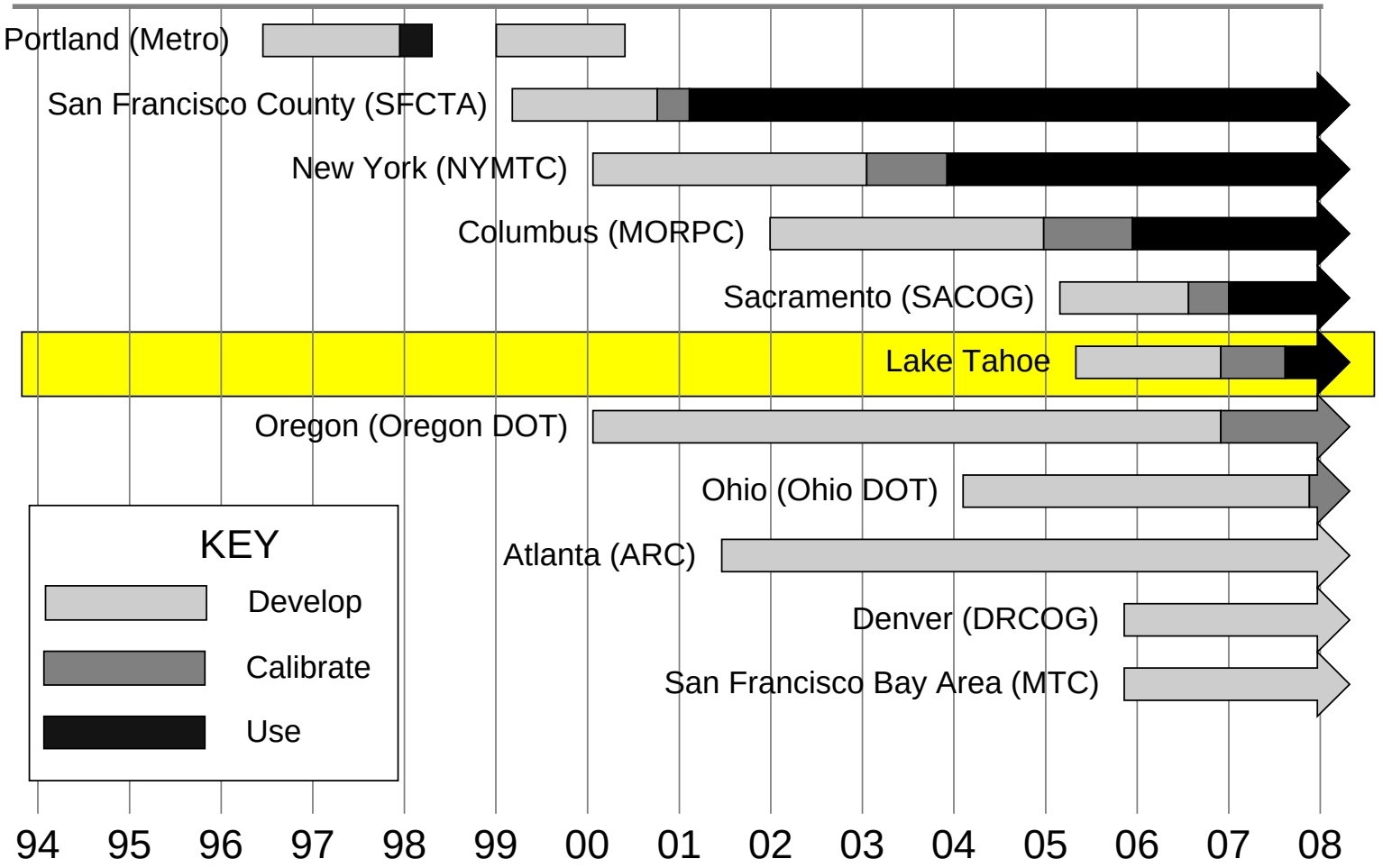
The Projects



2006: SACOG Innovations

- Reformulated day activity pattern
- High resolution
  - purpose (7)
  - time (1/2 hr)
  - space (parcel)
- Rapid development
- Equilibration techniques

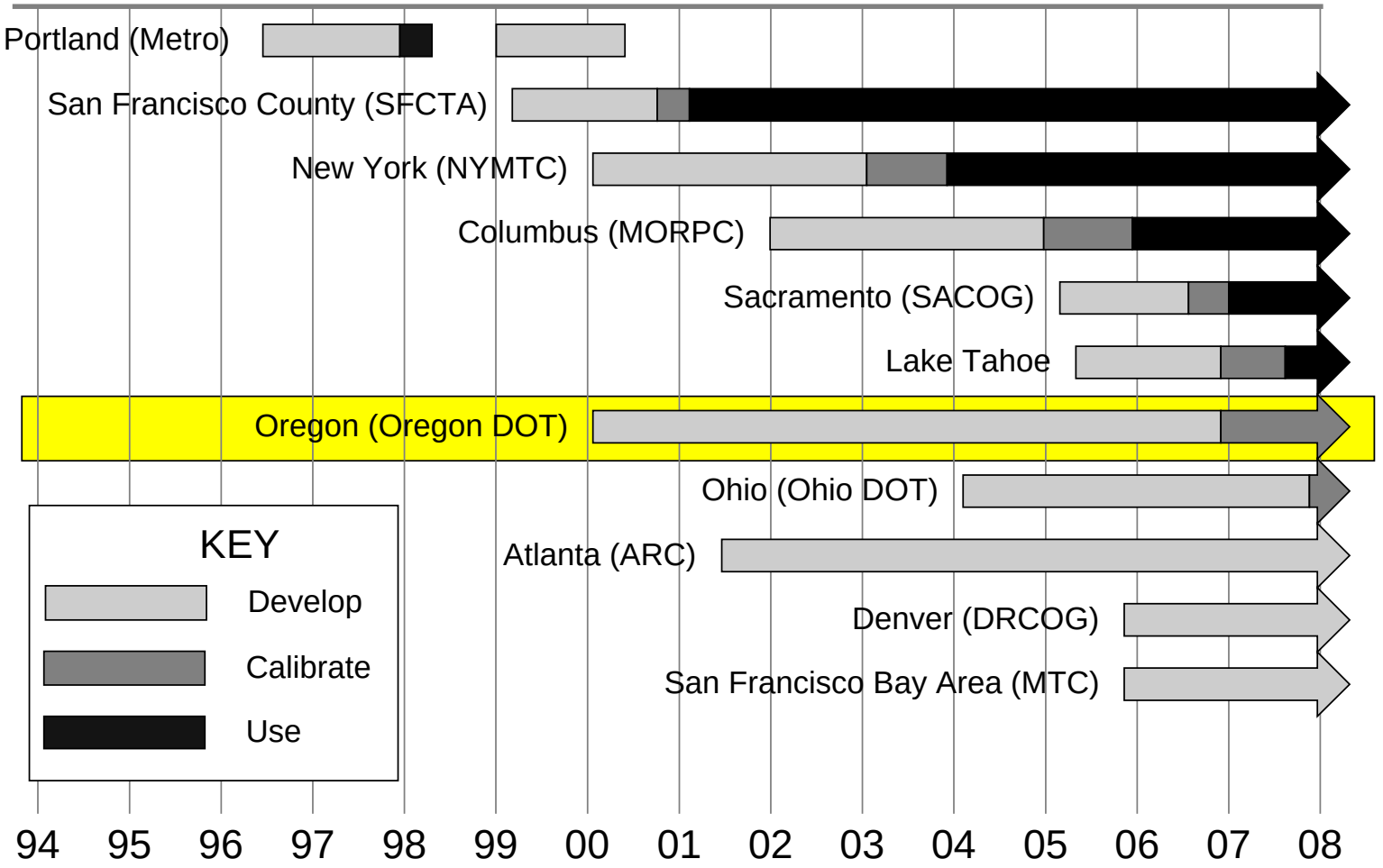
The Projects



2006: Tahoe Innovations

- Small MPO
- Transferred entire model system from another area

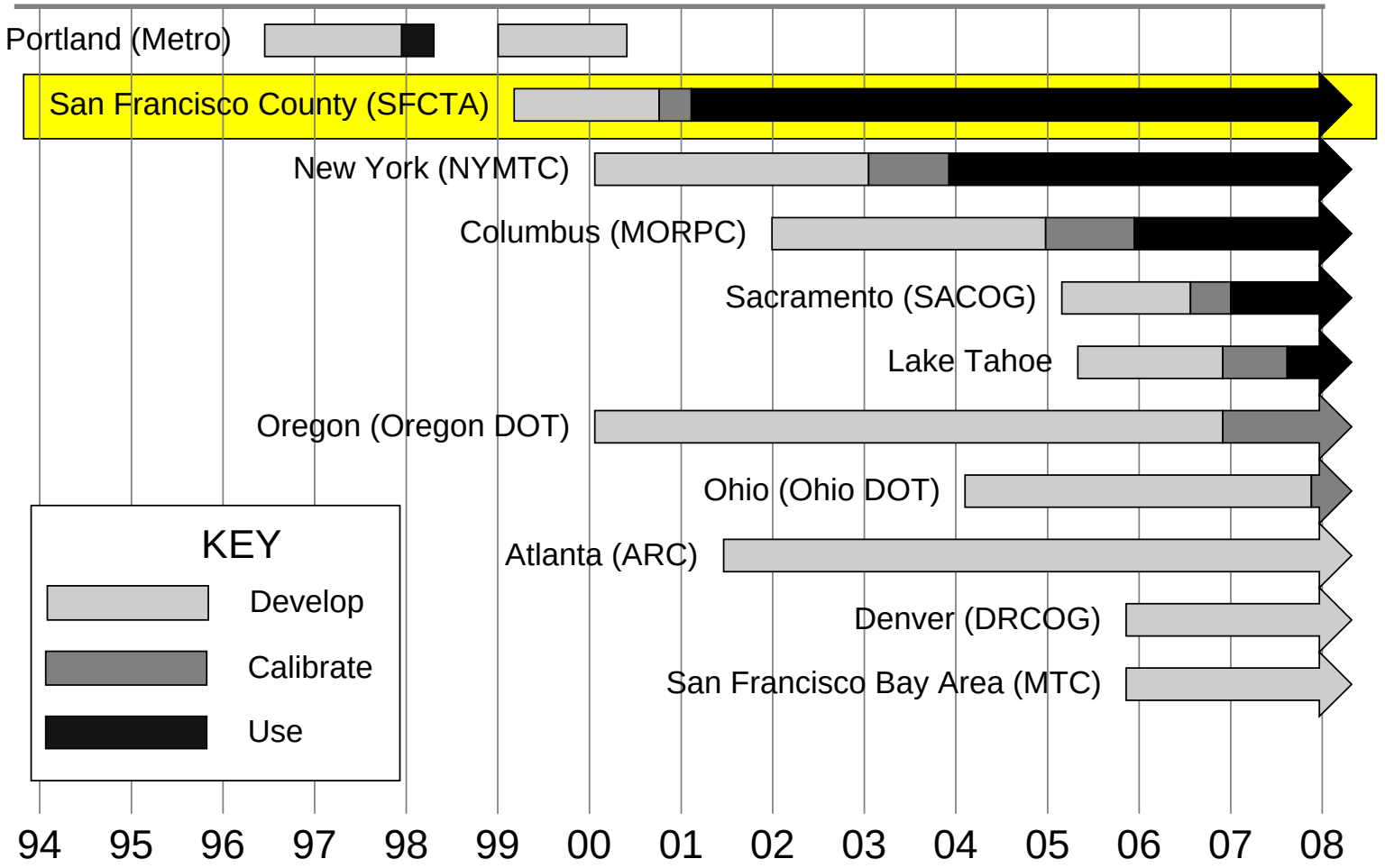
The Projects



2006: Oregon Innovations

- Statewide model
- Integrated with land-use model

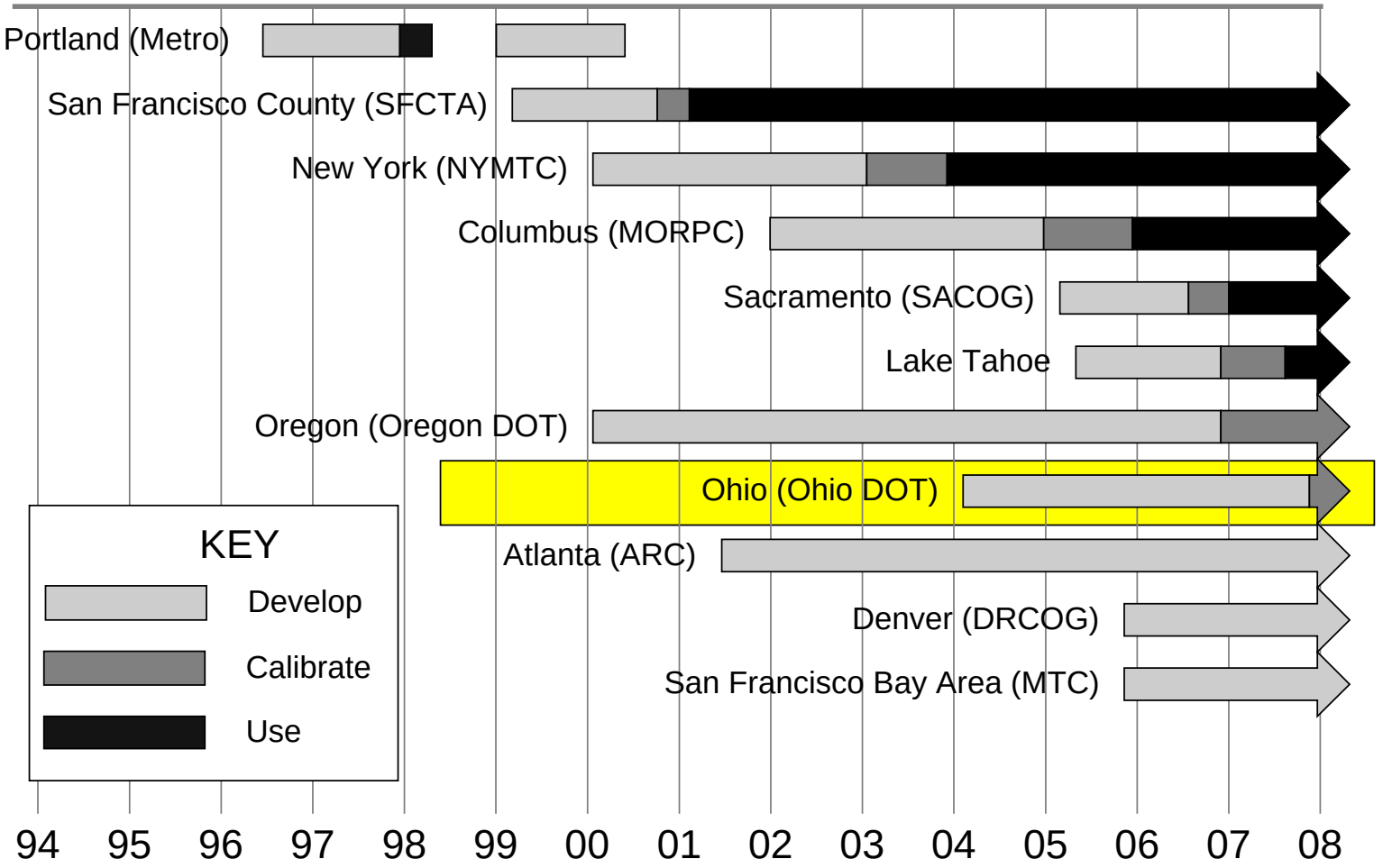
The Projects



2007: SFCTA Innovations

- Mode choice using tolled versus free paths
- Distributed values of time

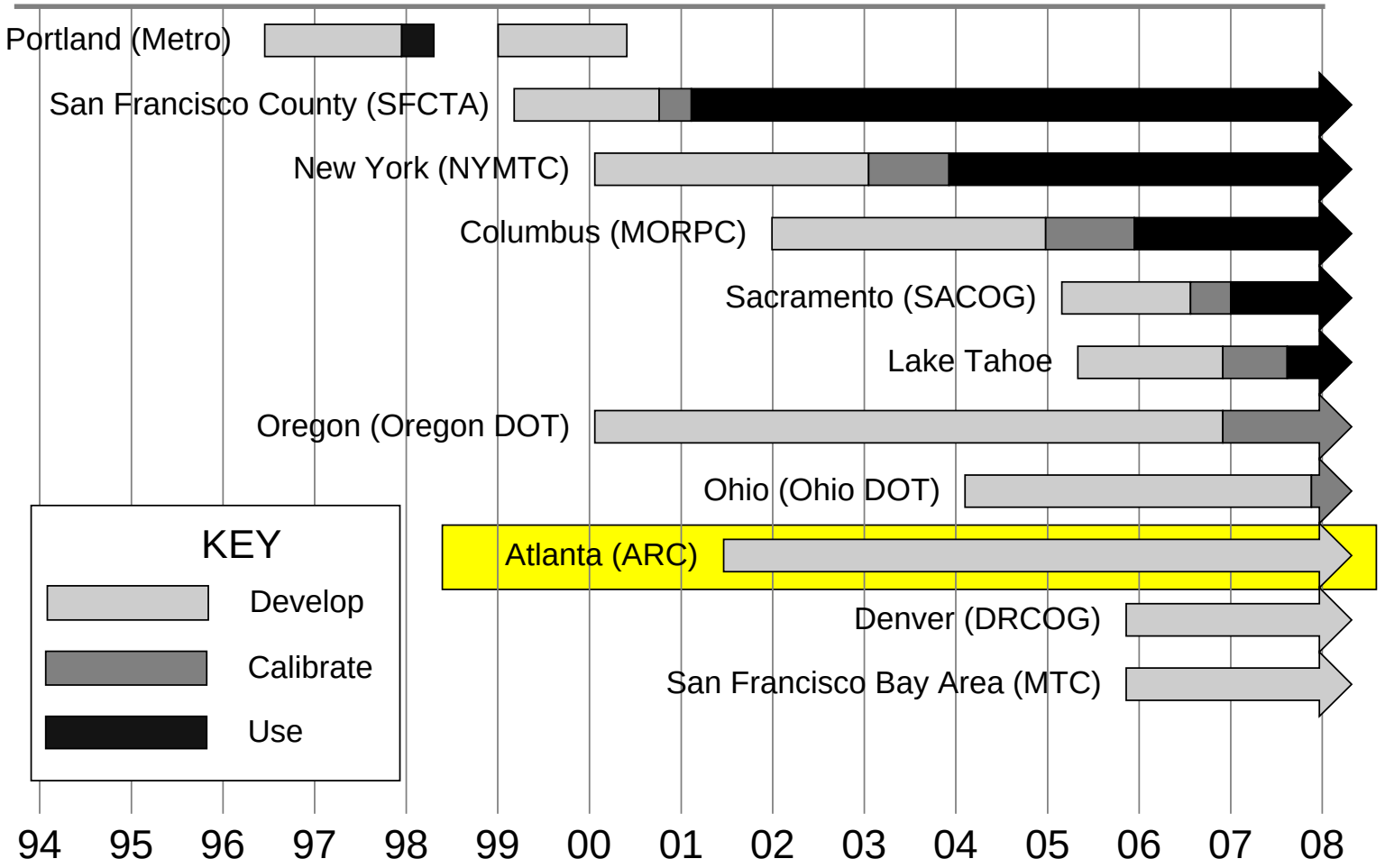
The Projects



2007: Ohio Innovations

- Long-distance model component

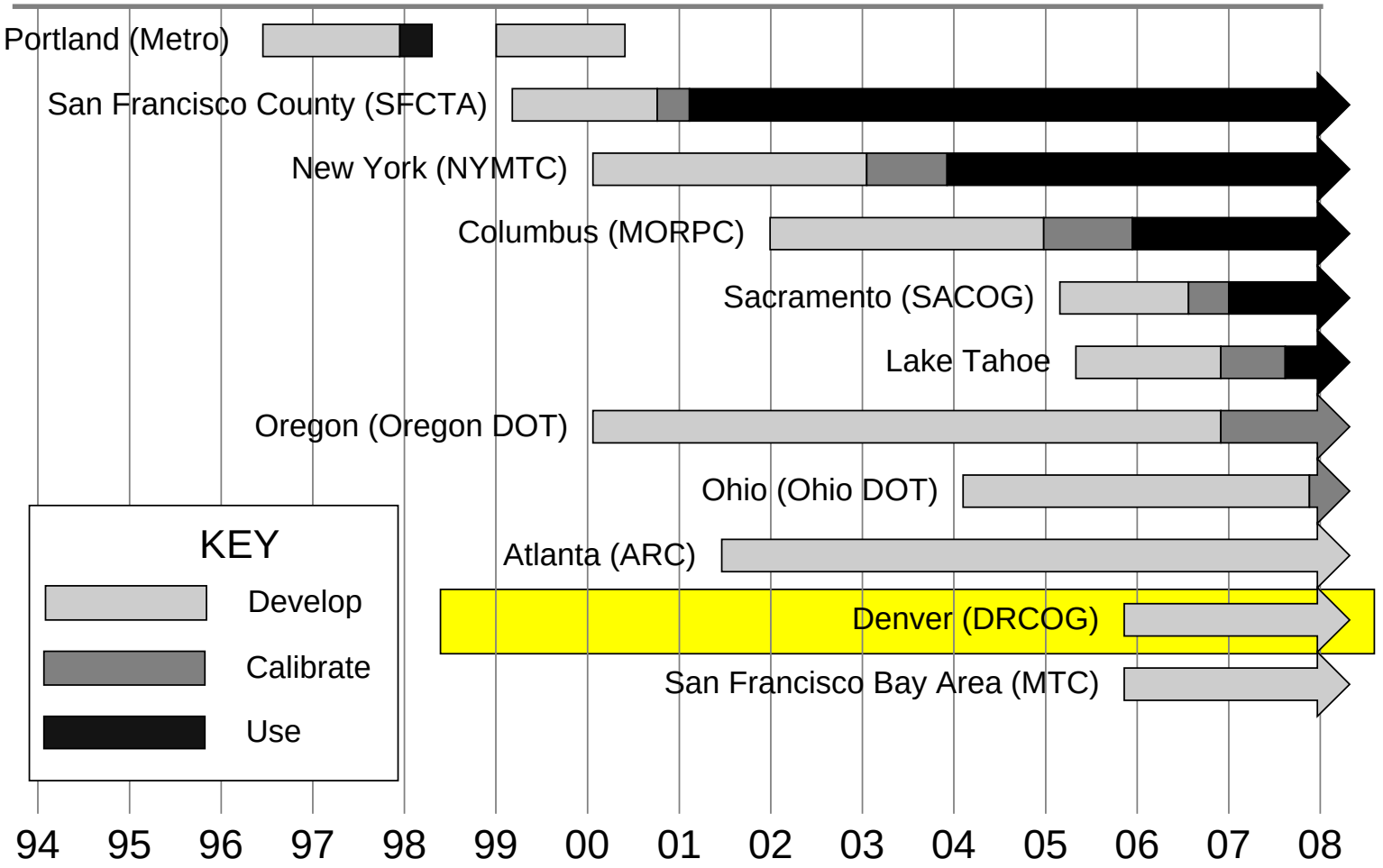
The Projects



ARC Innovations

- Flexible population synthesizer

The Projects



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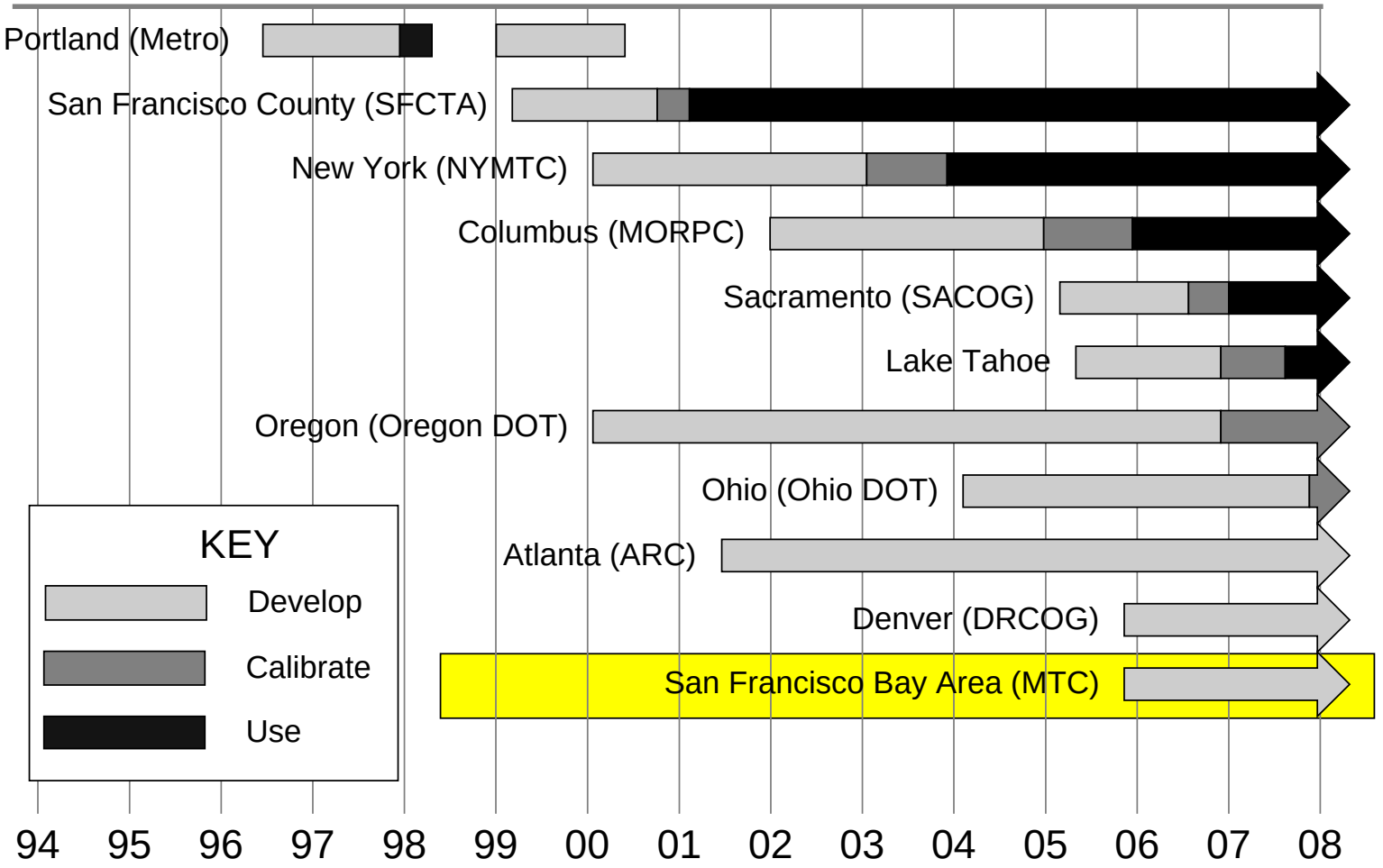

Summary

- Every project has cut new ground
- Every project that started has been implemented (or is still active)
- Except for Metro, every implemented model is being used

Objective

- A quick look at innovations implemented since 1995
- Why?
  - **What made them happen?**
  - Why are some not used?

What made them happen?

- Workable design framework
- Trusted instigating advocate
- Motivated sponsor
- Powerful internal champion
- Capable innovative developers
- Capable user staff

Workable Design Framework

- Example: Metro started with successful MIT prototype
- What it does
  - Gives advocate a vision
  - Gives sponsor confidence
  - Gives developers a handle

Trusted Instigating Advocate

- What it does
  - gets the ball rolling
- Examples
  - Keith Lawton—Metro
  - Gordon Schultz
    - NYMTC
    - ARC
    - MORPC

Motivated Sponsor

- What it does
  - provides an adequate funding stream
- Examples
  - SFCTA—Specific unmet needs (e.g. better market segmentation)
  - NYMTC—No model; region too complex for 4-step model
  - MORPC—Consultant funded extra cost

Powerful Internal Champion

- What it does
  - Builds and maintains sponsor commitment

Capable innovative developers

- What it does
  - Embeds research and innovation in development projects intended for real-world use

Capable user staff

- What it does
  - Achieves successful follow through
    - break in the new features
    - initiate ongoing innovative improvements

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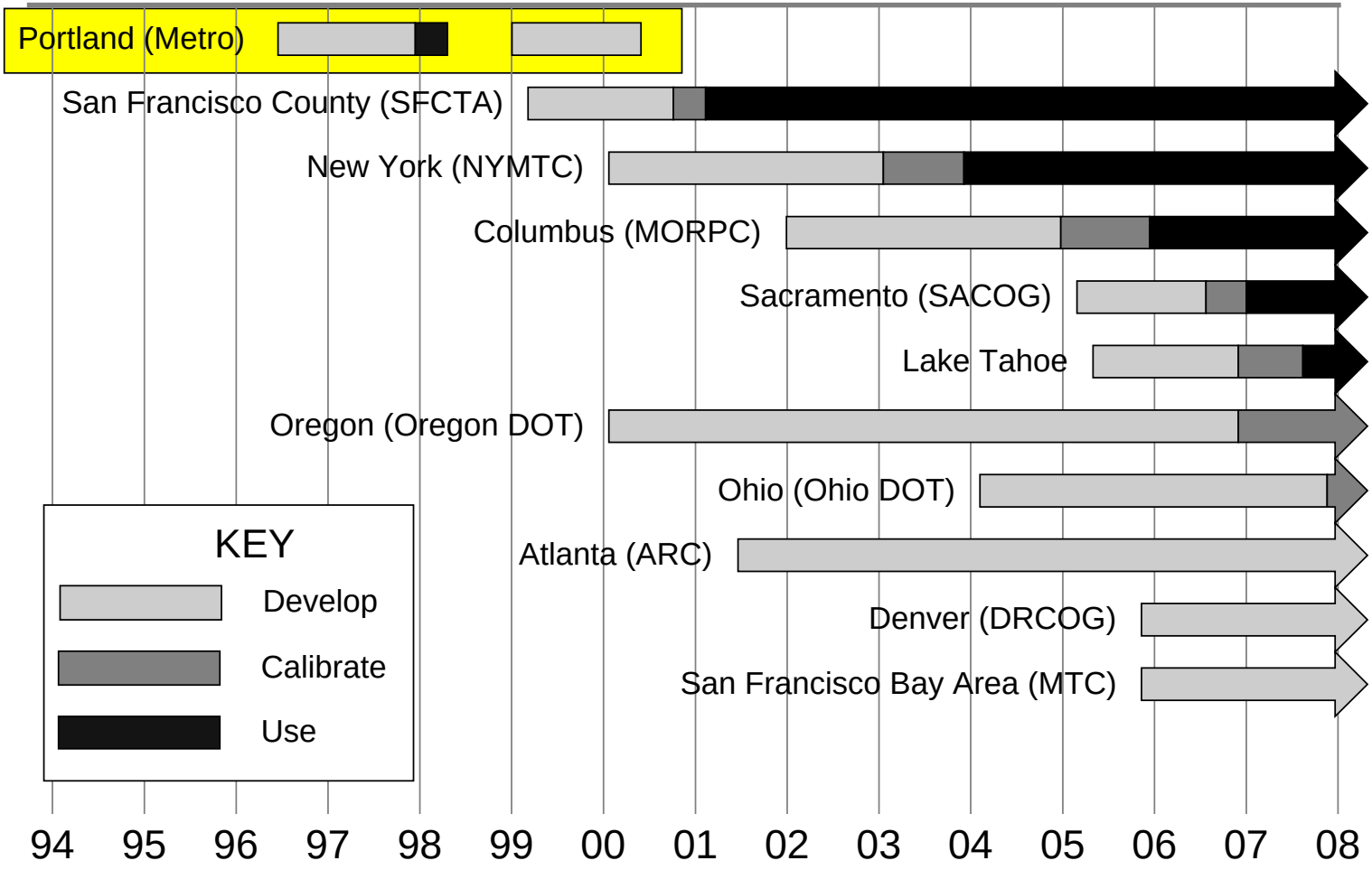
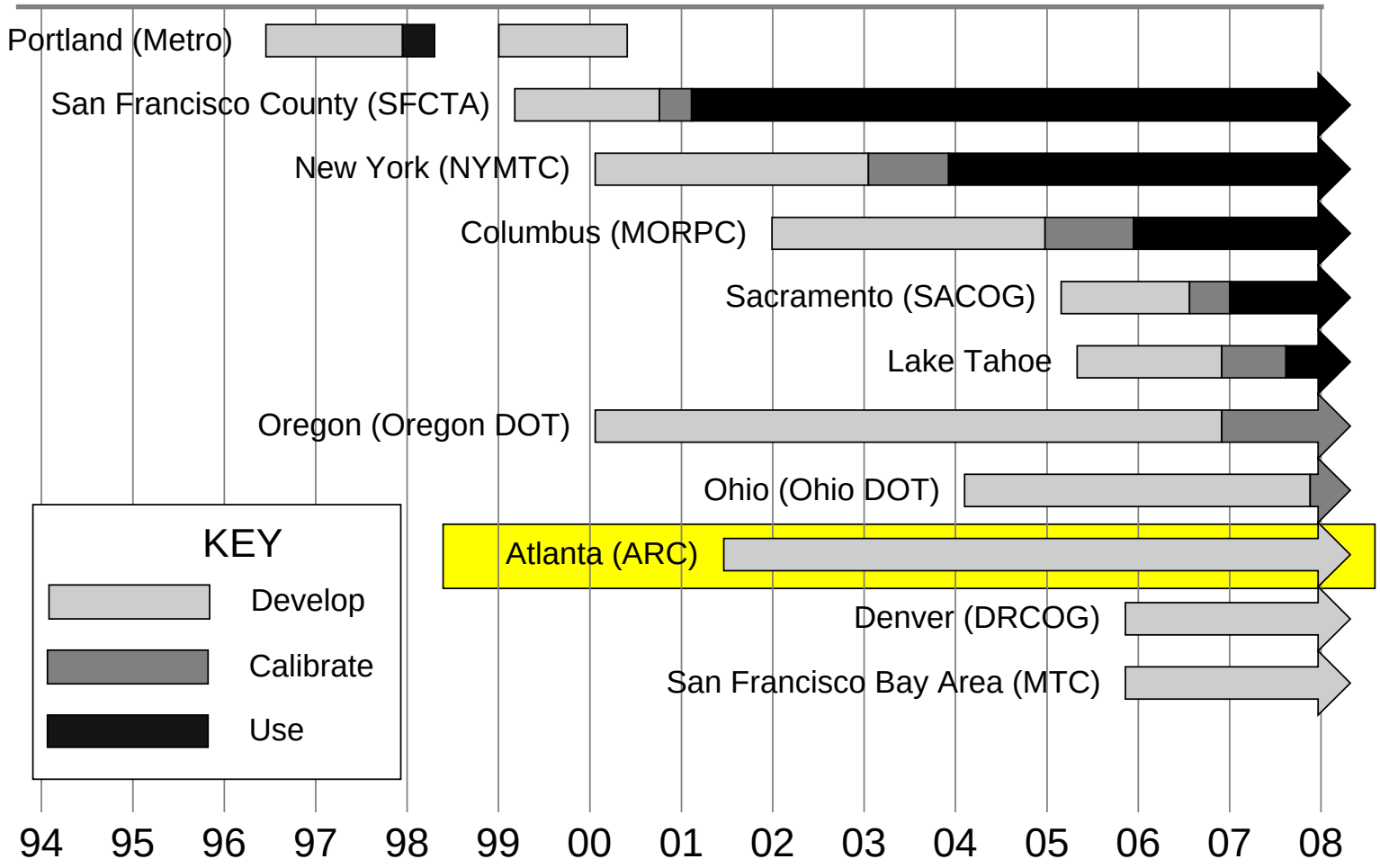
Why didn't Metro keep using their model?



Why didn't Metro keep using their model?

- Lost Sponsorship
  - MPO struggling financially
  - Federal funds for TranSIMS
  - No money for calibration & validation

Why is it taking ARC so long?



Why is it taking ARC so long?

- Sponsorship
  - ARC chose to invest at a slow rate
  - Expanded region from 13 to 20 counties
  - Commitment to implement the models didn't occur until late 2007

Conclusions

- Embedding R&D into real-world projects has worked
- Models get implemented and used
- Biggest risk has been insufficient sponsorship