The Future of Transportation in Connecticut

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Introduction

Gov. Lamont has proposed a $21 billion transportation plan, including $6 billion for rail.

Sources of funds include road tolls, federal loans, and state bonds.

The plan includes highway widening, bridge replacement, minor speed upgrades on Metro-North, and new trains.

Questions:

- What is the way forward for Connecticut transportation?
- What good models are there for Connecticut to learn from?

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Connecticut Transportation Demographics Today

The vast majority of Connecticut residents drive to work. A notable minority take public transportation: 4.7% (US: 5%).

Transit riders in Connecticut have about the same average income as solo drivers: the median earnings are $45,185 vs. $47,330 as of 2017...

...but this is skewed by high-earning NY-bound commuters. Transit riders are overrepresented among the rich and poor: 10.3% are poor, vs. 2.9% of solo drivers.

Among people who work in Connecticut, only 3% take transit to work, and their median earnings are only $26,447.

How Connecticut Trains and Buses Work

Metro-North is designed around the needs of 9-to-5 salaried office workers commuting to Manhattan.

Trains poorly serve other destinations, e.g. Downtown New Haven.

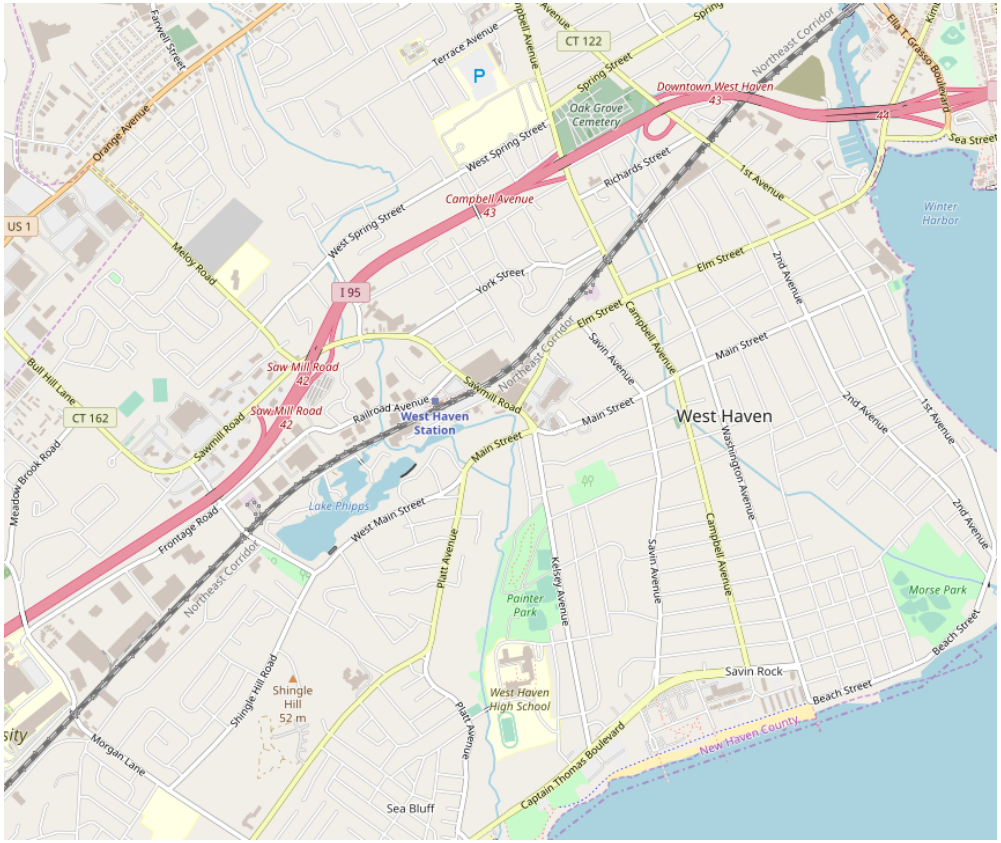
The use case: drivers who only take trains to New York.

Buses serve poor people with no better options: low fares, low frequency, poor amenities (no bus shelters), etc.

Poor Bus-Rail Integration

Rail is integrated with park-and-rides, not buses.

Example: the West Haven station was built at a good location for a park-and-ride and a bad one for a bus connection.



Slow, Unreliable Trains

Metro-North provides semi-decent service between individual town centers on the New Haven Line and New York. However:

- The average speed is low: about 2 hours NY-NH, an average speed of 58 km/h. Not great for such a long line.
- Frequency isn't very high off-peak.
- Constant weekend work leads to shutdowns.
- Money is thrown into the State of Good Repair black hole with nothing to show for it.
- No electric service to Hartford, New London (under catenary!), etc.

The state deserves much better.

The Current State of the Roads

The vast majority of state residents commute by car.

But the highways are not very good: potholes, I-95 congestion, city street congestion.

Fundamentally, too much of Connecticut's income comes from commuters to New York to rely exclusively on car-based transportation.

The state's geography is also very linear, which concentrates travel on roads that get congested fast (I-95, I-91).

There is Another Way

Car-dependence is uncommon in rich regions outside the United States: London, Ile-de-France, Holland, Upper Bavaria (=Munich), Switzerland, etc.

A rich state can coordinate different government agencies effectively to provide good public transportation.

Good public services require some government spending, but not too much of it: Metro-North's spending per unit of service provided ("revenue car-km") is about 2-2.5 times as high as that of peer systems in Western Europe and East Asia.

Imitate, Don't Innovate

The US is very far behind the rest of the developed world in transportation. So it's important to learn what other parts of the developed world do.

Connecticut's geography—high population density, strong linear corridors, strong historic town centers—has European analogs with excellent coordination between different modes of transportation.

What's good for the Swiss and Dutch should be good for Connecticut.

How Switzerland and the Netherlands Work

The two highest-use rail networks in Europe are in CH and NL.

They are dense (CH: 208/km^2, NL: 418/km^2, CT: 285/km^2), small (CH: 8.6 million, NL: 17.4 million, CH: 3.6 million) countries. NL is centralized, but CH makes coordination work in a federal system.

Transportation uses rail as the intercity spine. Cars are for shorter-distance trips, as are bikes in NL.

Frequency is high: key regional corridors have trains every 10-15 minutes all day, intercity ones every 30 minutes.

Everything connects to everything, with free, timed transfers between trains and buses.

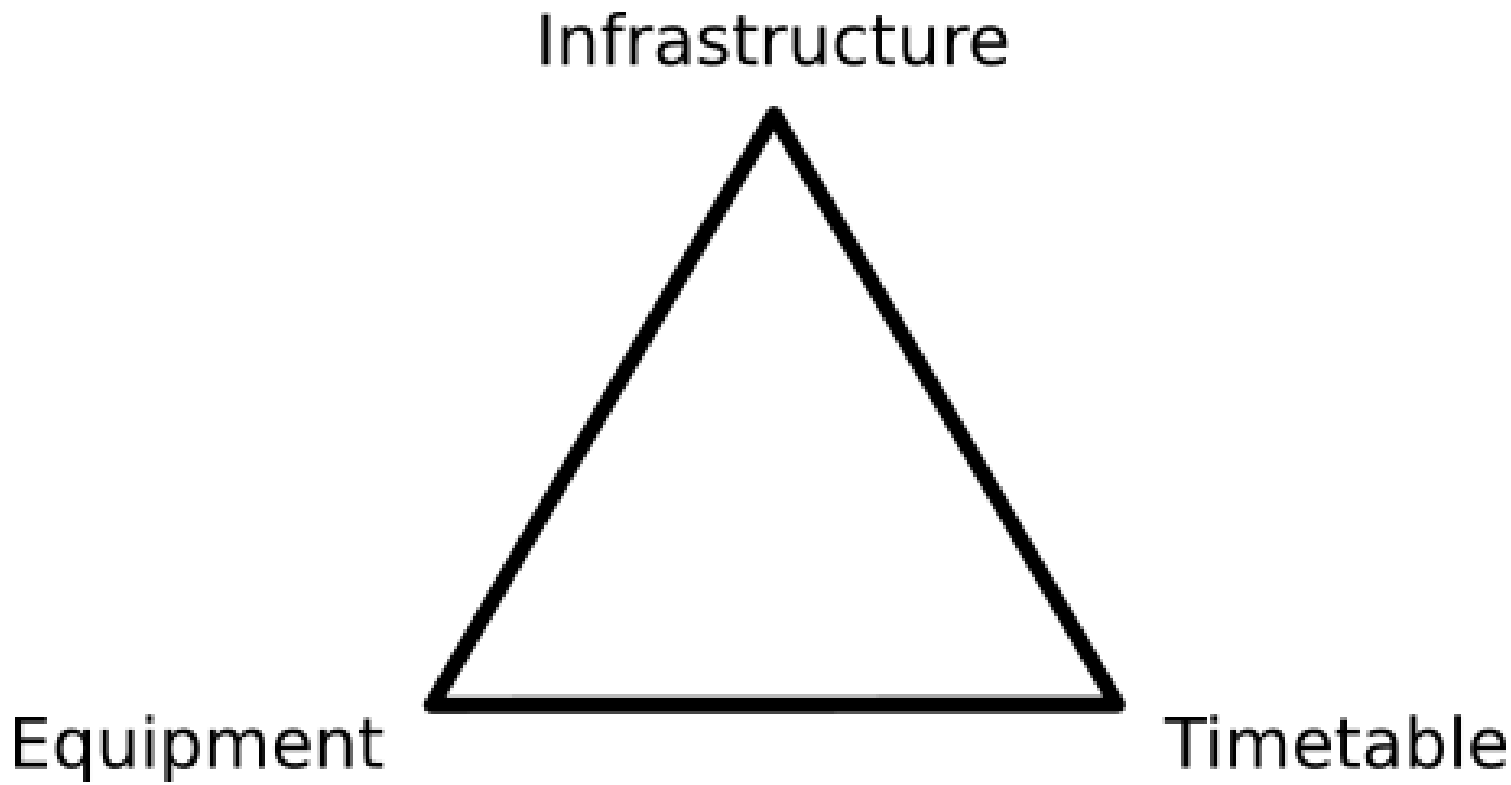
No class differentiation: trains can have first-class cars, but there's no sense that some transit services are for the poor and others for the rich.

Good Planning Slogans for Connecticut

Organization before electronics before concrete: first get different systems to coordinate (free), then invest in signals and electrification ($), then add new tracks and tunnels ($$$).

Reliability-centered planning: eliminate sources of conflict that lead to train delays (flat junctions, overly complex schedules, etc.).

The magic triangle of planning:



Better Things are Possible, on a Budget

Fixing the schedule—more regular train service patterns, high recurring frequency, timed transfers with buses, tight transfer windows—is more or less free.

The main cost is not in money but in getting different agencies and agency heads to communicate.

Infrastructure upgrades are pretty cheap, using automated track renewal machines. The entire NY-NH mainline should be doable in a few months of overnight and weekend work.

High-platform stations in CT cost $50-60 million. Boston: $30 million, which can be lowered with standardized designs. Berlin: €10-20 million. Spain: €3 million.

30-30-30 is Possible

Assumptions:

- M-8 rolling stock, not better European equipment (legalized in the US last year).
- 150 mm cant, 150 mm cant deficiency (both normal for electric passenger service), up from about $75 + 75$ today. Turnouts remain flat.
- Fix to one specific turnout at the GCT throat to enable 50 km/h approach speed.
- Schedules are padded 7%, standard in Swiss planning (Metro-North pads 20+%).
- Bridge replacements only save 2 minutes combined!

Result: Metro-North trains making today's stops plus New Rochelle take 1:24. Trains stopping only at Grand Central, Harlem, NR, Stamford, S Norwalk, Bridgeport, NH: 1:05.

Interstate Integration

Connecticut is not isolated, and should seek cooperation with neighboring states for key service improvements.

A large fraction of NY-NH speedup would be in NY State, with 4 minutes saved just on the Grand Central approach. This is fine—it helps NY commuters too, so NY cooperation should be forthcoming.

Hartford-Springfield rail service should be electric, very frequent (every 15 minutes on weekdays, at worst every 30 on weekends), and timed with buses in both cities.

Potential SLE extension to Westerly with RIPTA connections?

So Why Don't They Just Do It?

American mainline rail culture is very technologically conservative and unfamiliar with advances made in other parts of the world (clockface schedules, track renewal trains, high-performance EMUs, etc.).

An insular culture comes up with reasons why it is special: federal regulations (changed to align with European rules last year), ADA accessibility (in practice similar to European and Asian accessibility laws), freight (similar to Sweden), etc.

There's a culture of competition rather than cooperation, leading to agency turf battles: CDOT/Amtrak on the NH Line, MN/LIRR on East Side Access, Amtrak/LIRR/NJT at Penn Station, etc.

The Way Forward

Connecticut should learn from global best practices (CH, NL, etc.), not global worst ones (CDOT).

Transportation investment in the state should focus on rail, using buses and some bike paths as feeders. Don't build huge park-and-rides!

30-30-30 is likely doable in Gov. Lamont's current term. All of this is completely standard in much of Western Europe.

All public transit service in the state should be coordinated, with free transfers, timed connections at key nodes, and investments centered on making seamless connections feasible.

Thank you!