



PCC Pavement Sustainability in New York

Economy, Environment, and Society: 2 Out of 3 is Easy

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The New York State Department of Transportation (NYSDOT) has not adopted a comprehensive PCC pavement sustainability strategy. NYSDOT recognizes that PCC pavements have “sustainable” characteristics. Interestingly, the characteristics that make PCC sustainable can conflict with other sustainable efforts, begging the question, “Is any pavement truly “sustainable?””

1. PCC pavements, and pavement networks in general, allow the safe and efficient movement of goods and services needed to sustain our economy. Those same networks also encourage sprawl which claims land and other resources while increasing dependency on foreign energy – at least for the present.
2. Pavement networks have helped people experience a high quality of life. For many, it may be a relatively short drive to virtually anything. It has been argued that this convenience increases our “carbon footprint” and contributes to global warming.
3. PCC pavements have very high load carrying capacities and are designed for 50 year service lives in New York. Long life is PCC’s most sustainable feature. Cement production, on the other hand, is a significant source of carbon dioxide and mercury.
4. NYSDOT will overlay PCC pavements (with either HMA or PCC) after decades of service. It is not unreasonable to expect a smooth, quiet, low rolling resistant, PCC pavement constructed today to carry loads for 100 years. The best sustainable pavement practice is “Build It To Last.”
5. NYSDOT has constructed beautiful, high capacity PCC pavements in urban areas with impressive planted medians and architecturally enhanced crosswalks, parking lanes, and sidewalks. Those features are expensive.
6. Recycled PCC pavement is frequently used as subbase or used in commercial concrete.

NYSDOT typically constructs PCC pavement for our most trafficked and heavily loaded pavements. Traffic, and maintaining it through work zones, can work against sustainable practices.

1. Smaller work zones can result when a project is designed to minimize traffic delay. This can increase total construction duration, emissions, and user delay costs. Larger work zones encourage production efficiencies.
2. Working under traffic can increase the use of high early strength concretes. HES concretes are more expensive, use more cement, and are less likely to have the excellent long-term durability we have become accustomed to with standard PCC mixes.
3. Accelerated construction to accommodate traffic discourages using fly ash, slag, or other supplementary cementitious materials. NYSDOT allows SCMs, but does not require them, unless a reactive coarse aggregate is selected.
4. NYSDOT uses precast slabs to ensure traffic is not interrupted during rush hours. They are expensive, often made with HES concrete, and do not have a long service history.



Longitudinally Tined and Quiet



Colored, Stamped PCC X-Walk. Nice and Safe.



Small Work Zones Decrease Efficiency



Colored, Stamped Parking and Exposed Agg Sidewalks



PCC Roundabout Will Move A Lot Of Traffic A Long Time



Unbonded PCC Overlay Test Section Atop Rubblized, Cracked and Sealed, and Non-Fractured PCC Pavement



Precast PCC Pavement



PCC Pavement Rebuilds Lower Manhattan