

Public-Private Partnerships and Sydney Road Tunnels

- Cross City Tunnel (opened June 2005)
- Lane Cove Tunnel (opened March 2007)

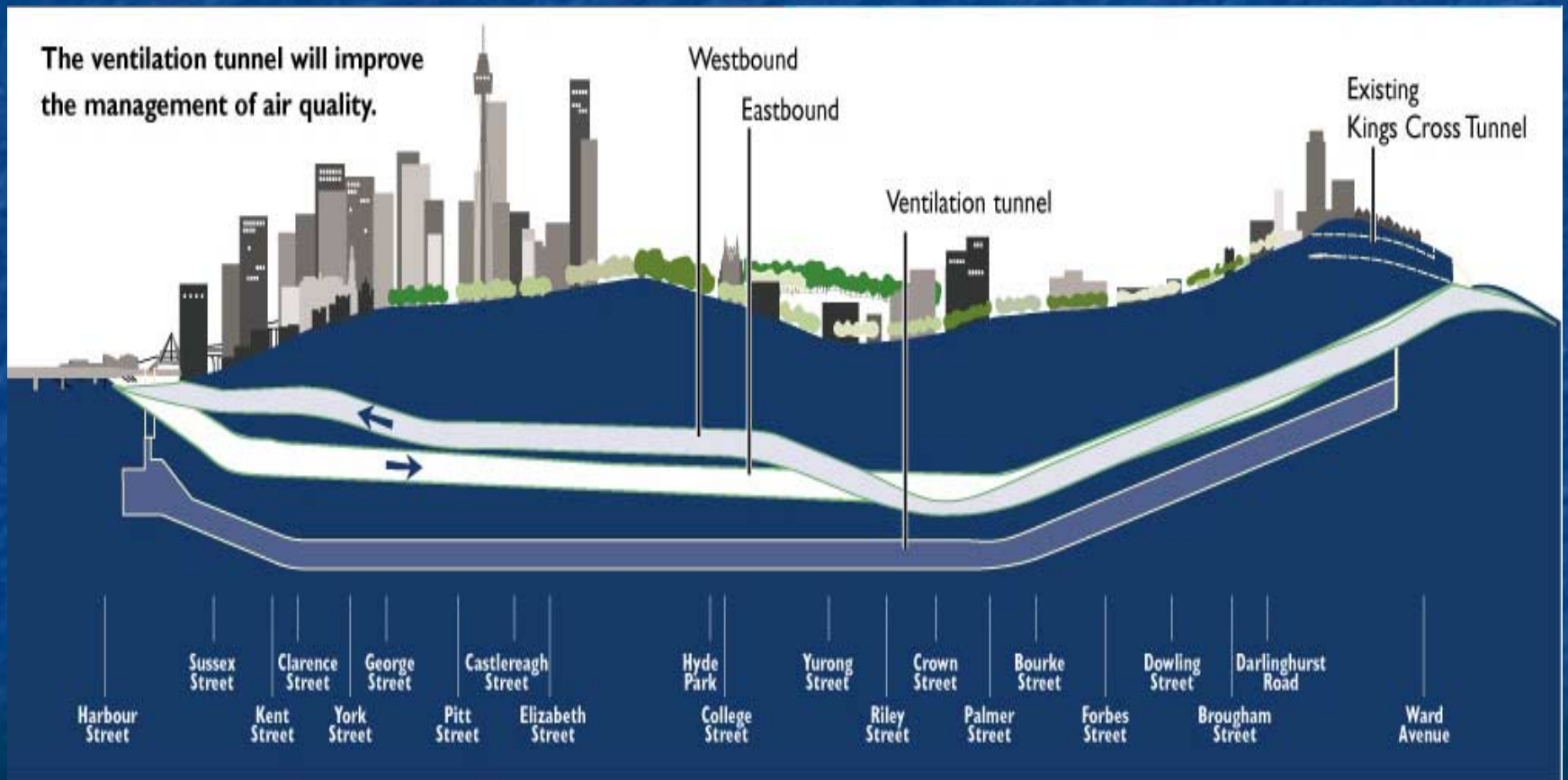
Contract for the Cross City Tunnel

- In 2002, the NSW Government awarded [Cross City Motorways](#) the contract to build, own, and operate the Cross City Tunnel
- Construction work for the cross city tunnel commenced in January 2003
- The tunnel was originally scheduled to open in October 2005
- The Tunnel opened in June 2005

Cross City Tunnel Finances

- In December 2006, the Cross City Tunnel was declared insolvent with debts of over \$500 million.
- On 20 June 2007, Leighton Contractors and investment bank ABN AMRO were chosen as preferred purchasers of the Cross City Tunnel Group for \$700 million.
- It is privately owned and operated, but will revert to public ownership in 2030

Cross City Tunnel Diagram



Analysis of Traffic Numbers and Revenue

Cross City Tunnel 2005

Figure 1: Cross City Tunnel Traffic Demand Curve Model

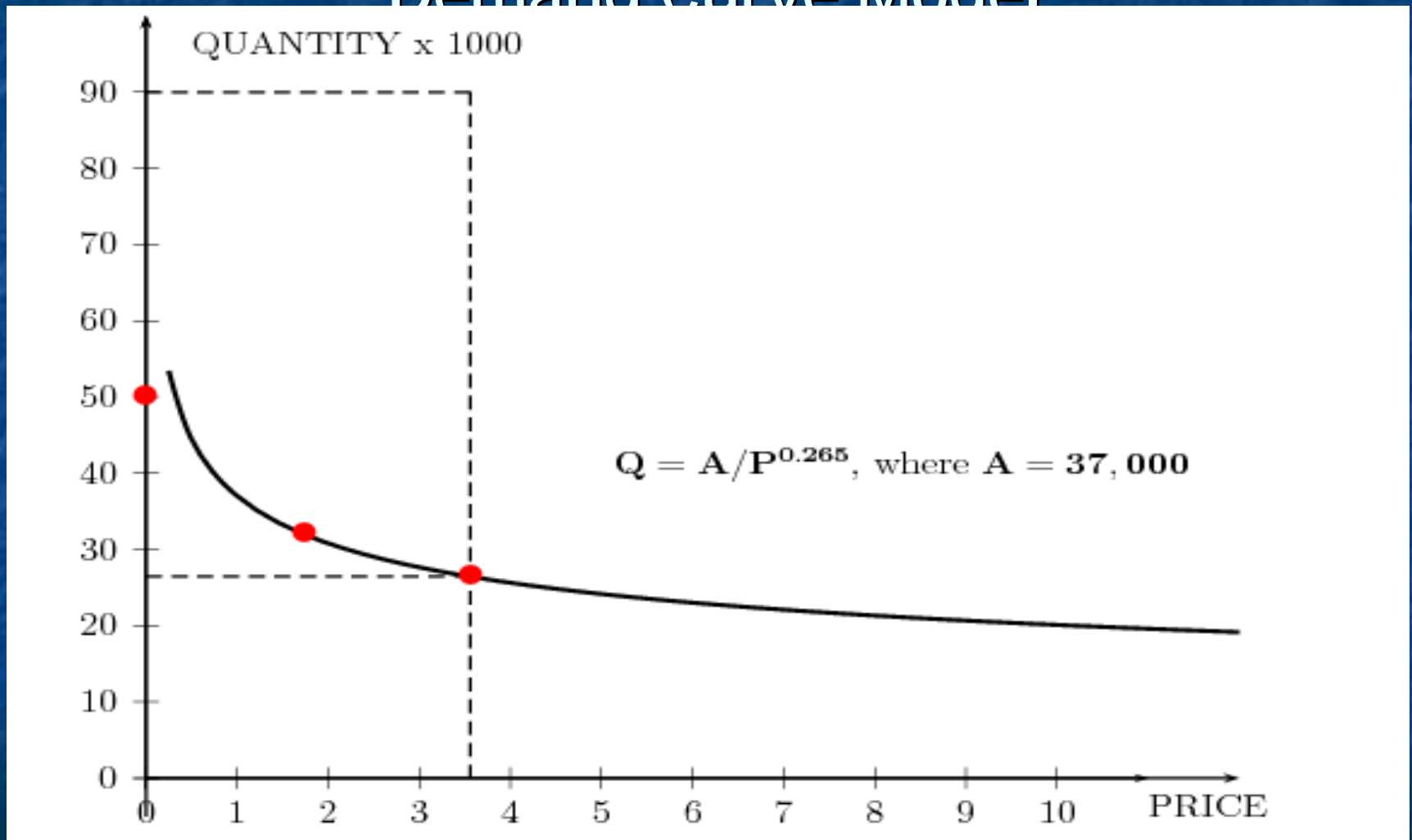


Figure 2: Improved Model of Demand for Cross City Tunnel

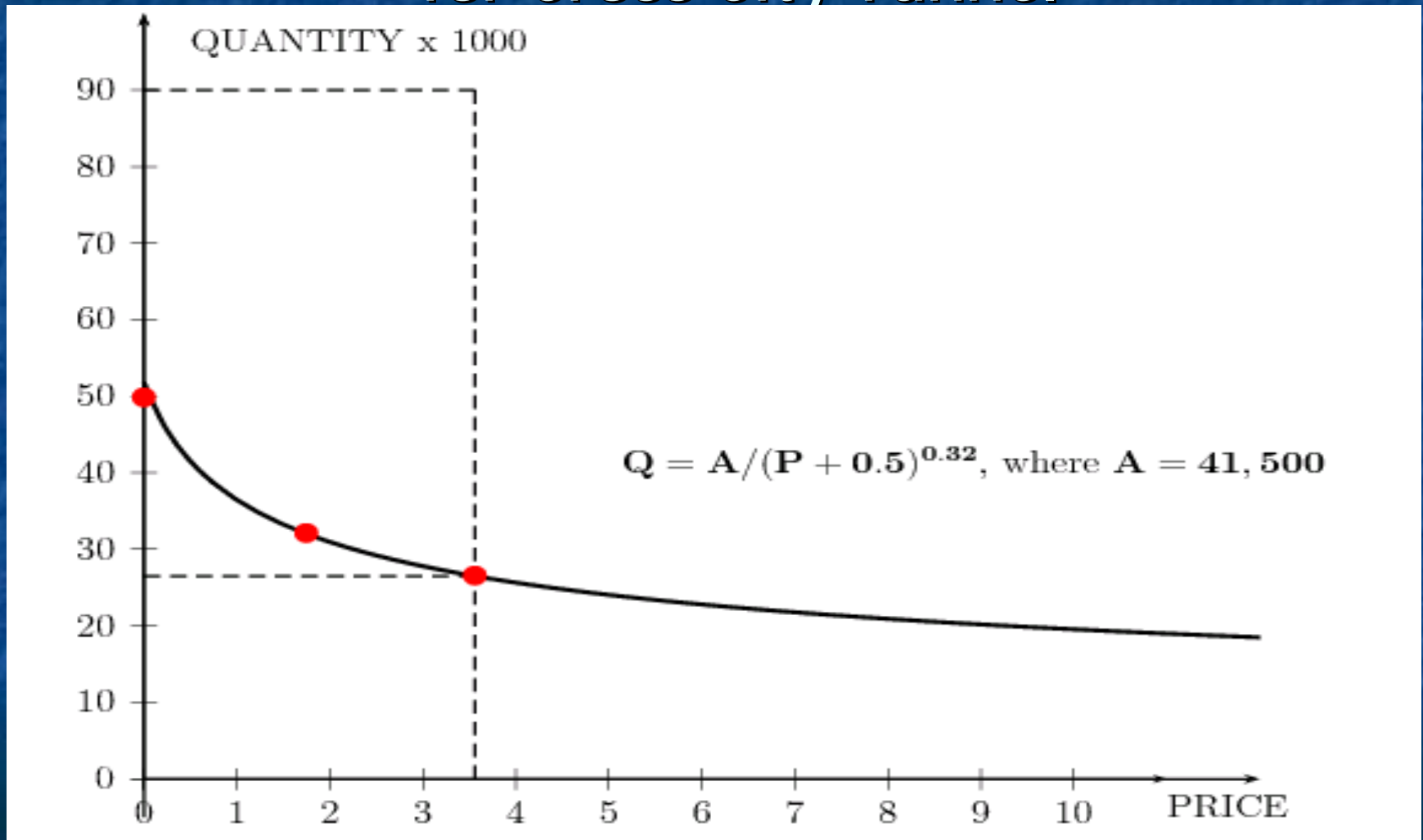


Figure 3: Linear Model of Demand

Note that revenue is maximized at \$6 per trip

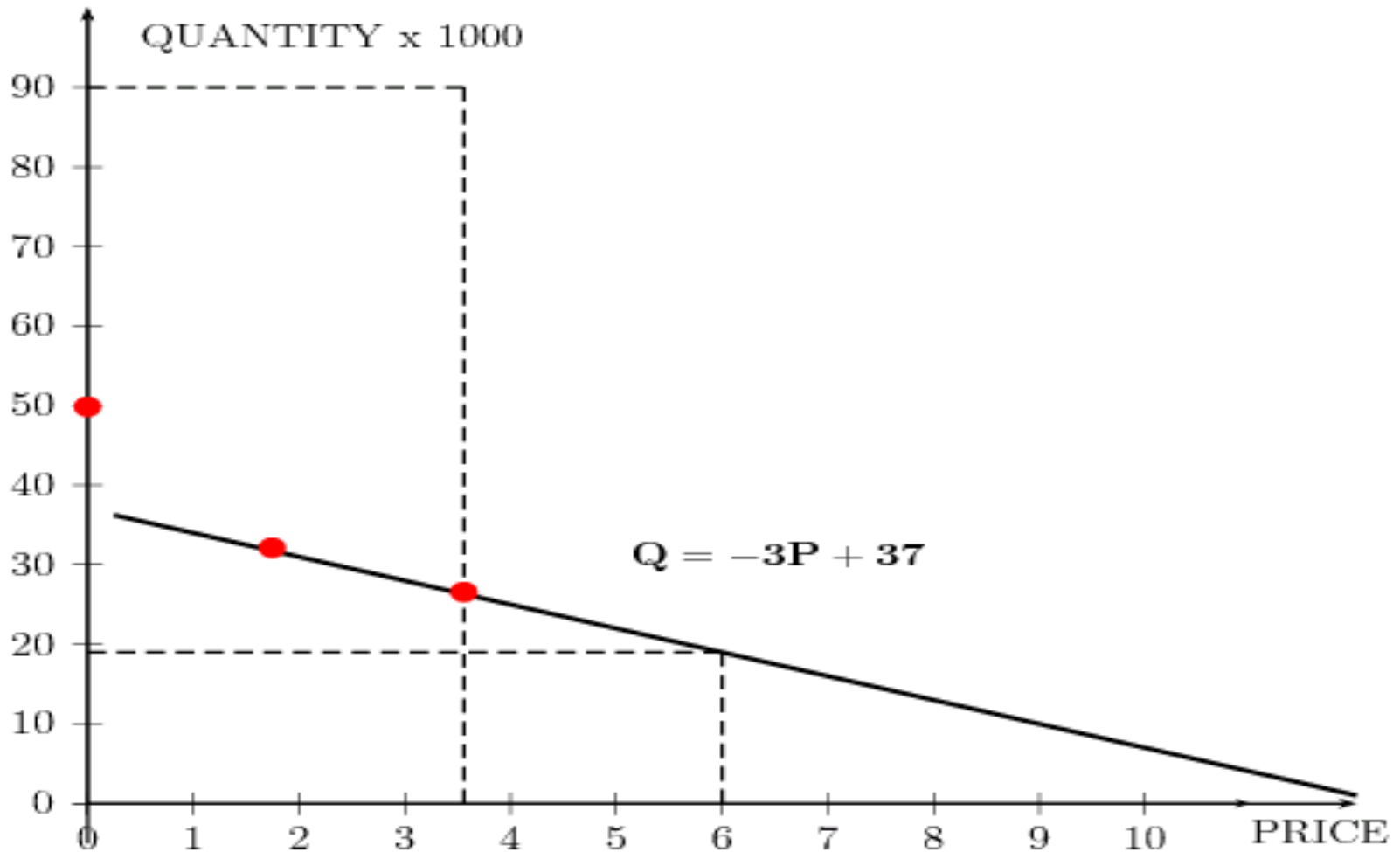
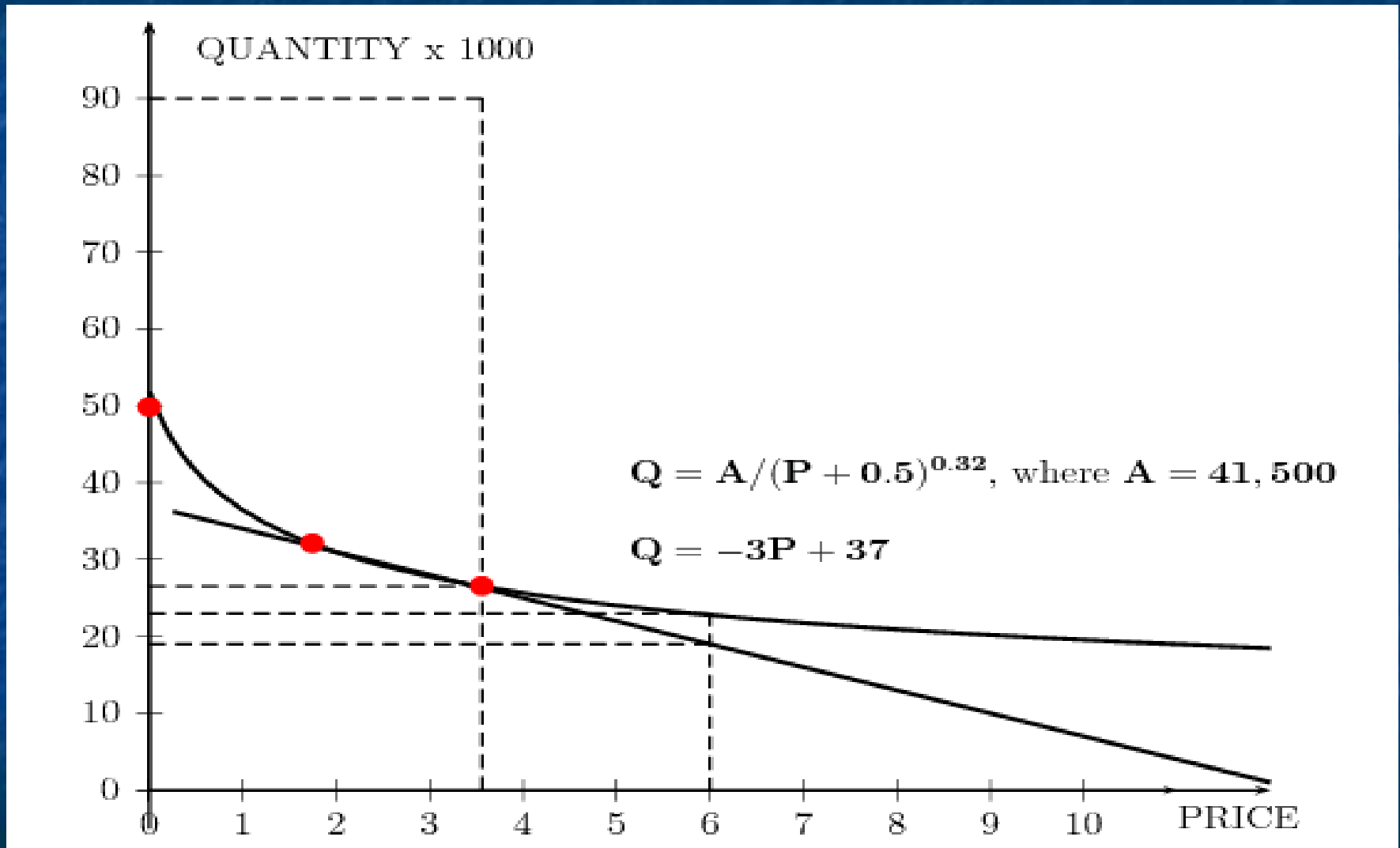


Figure 4: Comparison of Demand Models



Lane Cove Tunnel

- Start: June 2004
- Finish: June 2007
- Contract Type: Design and Construct
- Value: \$1.16 billion, comprising
 - Thiess: \$582 million
 - John Holland: \$582 million
- (December 2006 estimates)
- Reverts to public ownership in 2040

Features of the Lane Cove Tunnel

- Twin 3.6km tunnel to link the M2 Motorway with the Gore Hill Freeway.
- Two lanes across the Lane Cove River
- Transit lanes on the Gore Hill Freeway
- New ramps at Falcon Street
- Cycleway from North Ryde to Naremburn (previous car lane along Epping Road)

Lane Cove Traffic and Revenue

- Original estimates: 90,000 -110,000 cars/day
- Toll Free Period for Tunnel:
 - Tunnel: 75,000 Epping Road: 50,000
- With \$2.55 toll for Tunnel
 - Tunnel: 50,000 Epping Road: 75,000

Morning Peak on Epping Road Prior to Lane Cove Tunnel



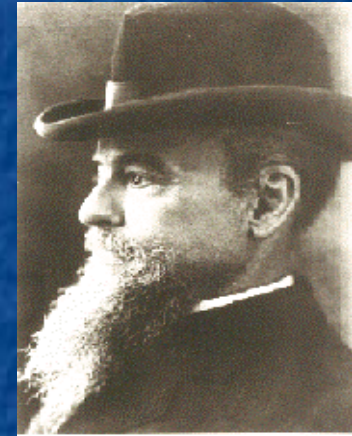
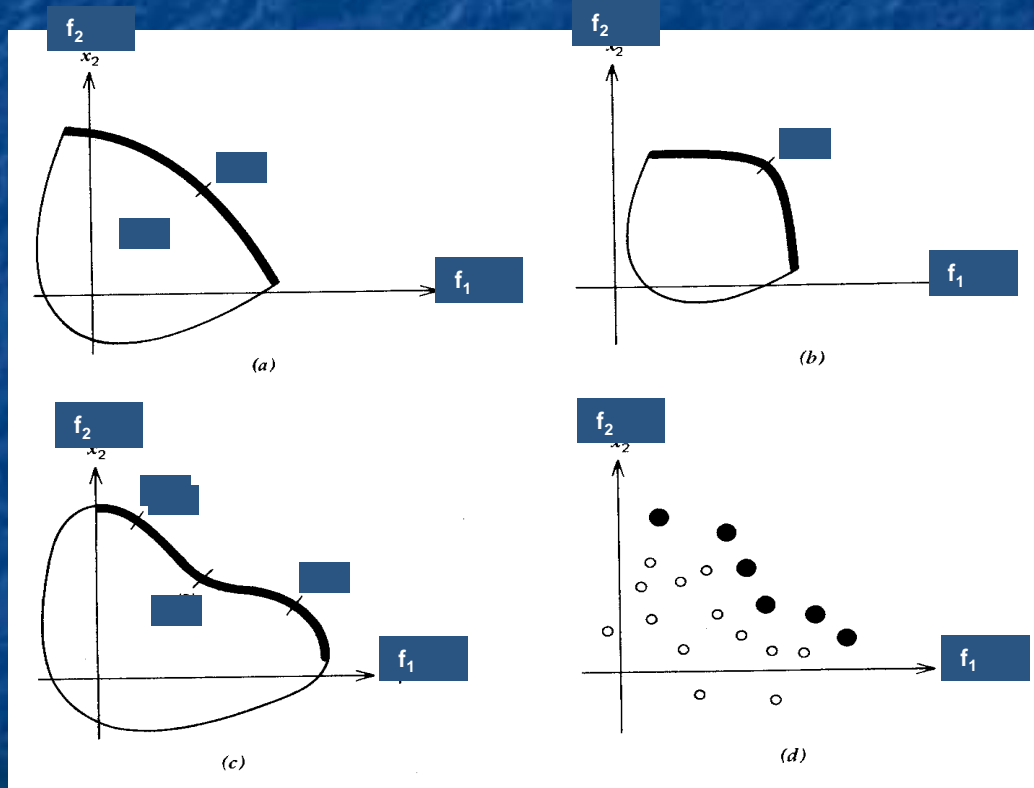
Gore Hill Entrance to Lane Cove Tunnel



Pareto Optimum for a Multiple Objective Problem

- A Pareto Frontier is defined to be an optimum “trade-off curve” where:
 - No point is “better” than any other point on the line with respect to all objectives.
 - No improvements can be made in any objective without worsening another.
 - Each point on the Pareto Frontier is called a Pareto Optimum or solution.

Pareto Optimum Examples



Pareto Optimum and the Road Tunnels

The extent to which the tunnels were not a Pareto improvement is reflected in public dissatisfaction.

Evaluation of Cross City Tunnel

- Costs and Benefits:
- Some real benefits for the limited volume of traffic using it.
- Financial viability questionable.
- Pareto Criterion: Fail

Evaluation of Lane Cove Tunnel

- Costs and Benefits:
- Limited benefits for traffic using it.
- Financially viable based on inconveniencing motorists.
- Pareto Criterion: Fail

Public Private Partnerships in Urban Transport

- The Cross City and Lane Cove Tunnels provide good examples where public utility suffers for private benefit.
- More emphasis should be put on public transport rather than roads.