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The Potential For Introducing A Tram Service In Malta

Presentation, Friday 5th December 2008

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Halcrow Group Ltd

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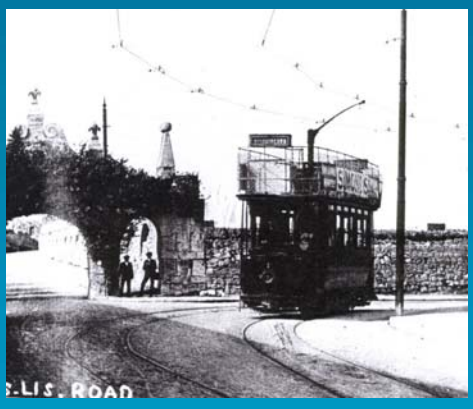
The Former Malta Tramway



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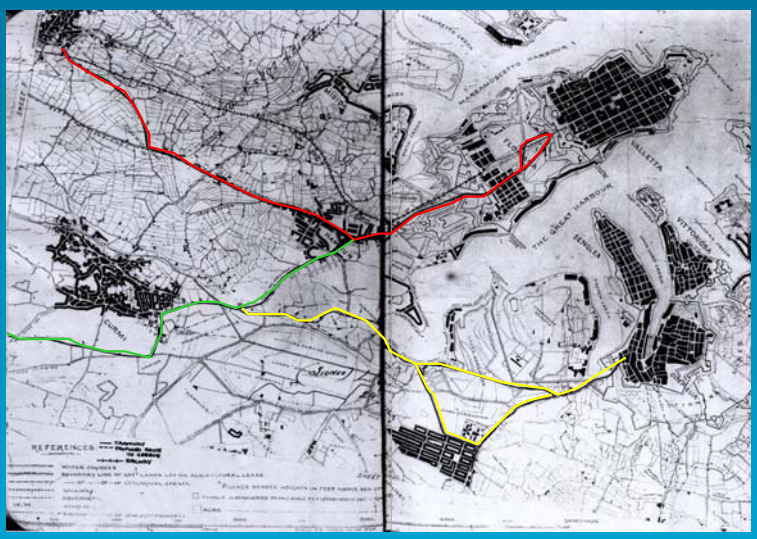
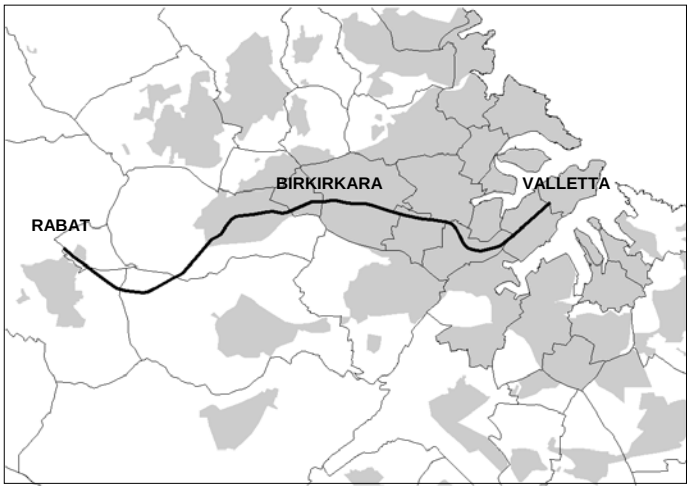
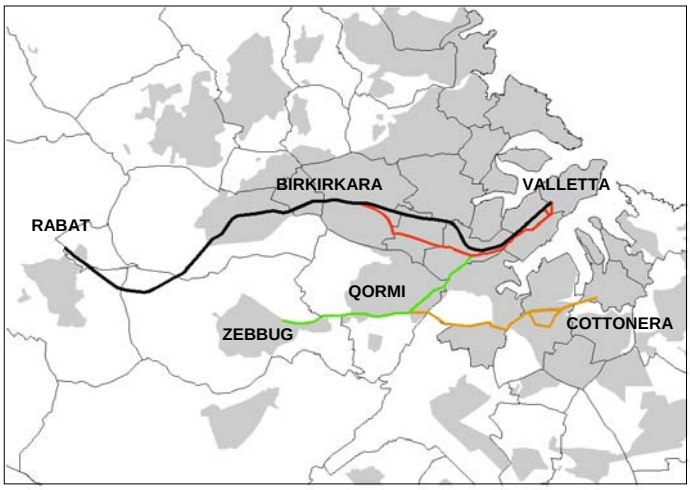
The Former Malta Tramway Routes



Malta Old Train Route



Old Train and Tram Routes



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What is Light Rail Transit?

- a broad spectrum of “steel wheel on steel rail” solutions
- medium cost/speed/capacity
- segregated alignment or prioritise over traffic, or mix with traffic
- typically 4,000-5,000 passengers/hour/direction
- street tramway solution most appropriate for Malta

Modern Street Tramway - Saarbrucken

System Characteristics

- vehicles:
  - electrically powered
  - lightweight, low floor, articulated
  - capacity up to 250 passengers seated & standing
  - up to 35m long, 2.40-2.65m wide (bus 2.55m)
  - gradients to 10%, curve radius down to 18m
  - can out-perform general road traffic
  - costly due to small production runs
- track:
  - lightweight standard gauge (1.435m)
  - grooved steel track flush with surface
  - imposed load similar to HGV

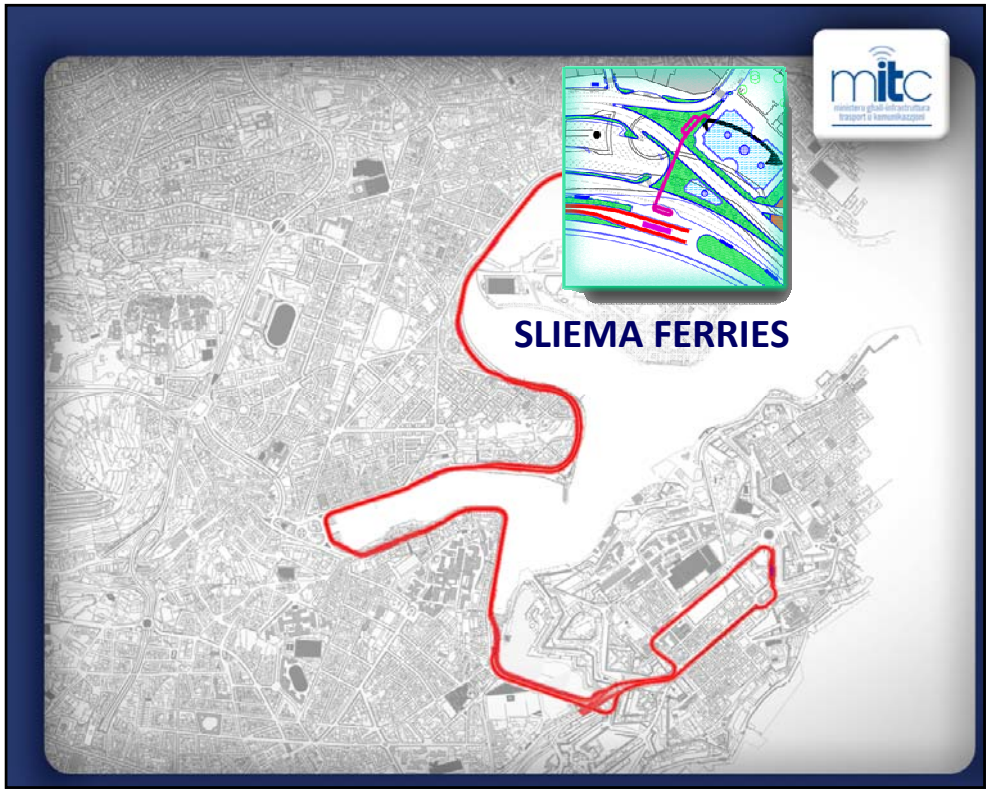
System Characteristics

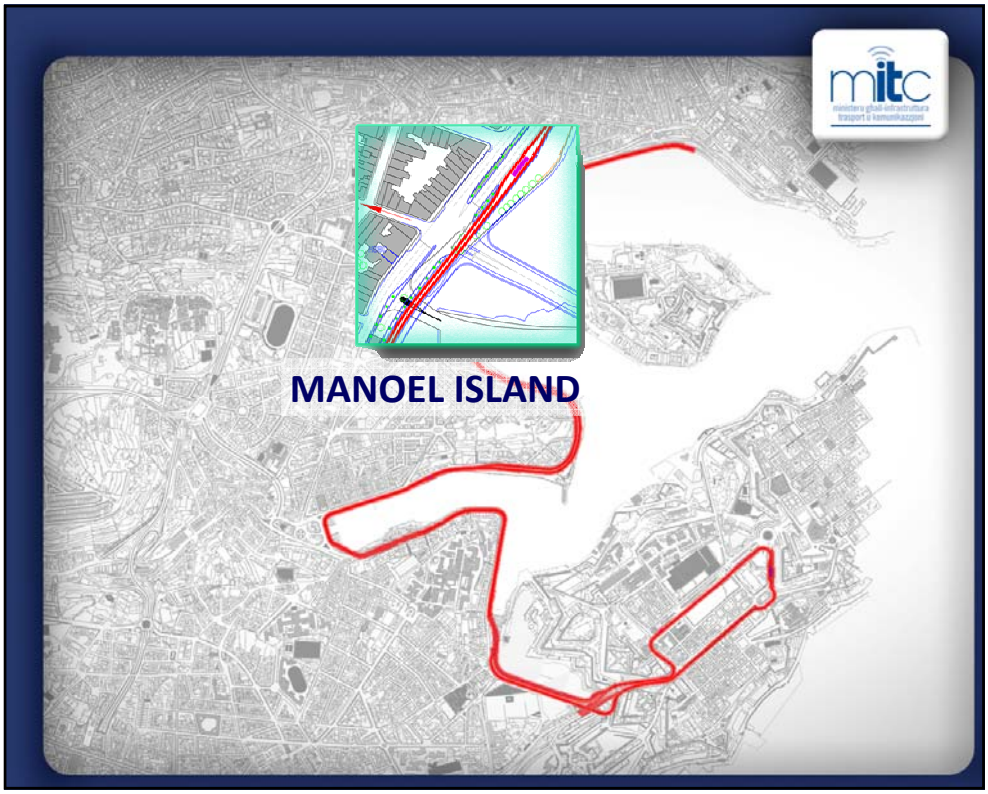
- infrastructure:
  - stops are low footpath-level platforms, easily integrated into streetscape
  - interchanges more elaborate with bus facilities
- power supply:
  - 750v DC overhead electric
  - wires need not be intrusive, supported by columns or from building fixings
  - need for power sub-stations along route
- signalling
  - driver's line-of-sight operation as other road users
  - integrated with general traffic signalling at intersections
- depot and operational control centre
  - ideally located away from urban area
  - real-time monitoring of vehicle location and intersection performance

Fares and Ticketing

- consistent fare structure with bus system
- possible park & ride premium
- need for bus/tram integrated ticket
- driver in closed-off cab
- speedy multi-door loading/unloading
- pre-purchase tickets issued at machines or shops, additionally by conductors
- significant revenue protection required

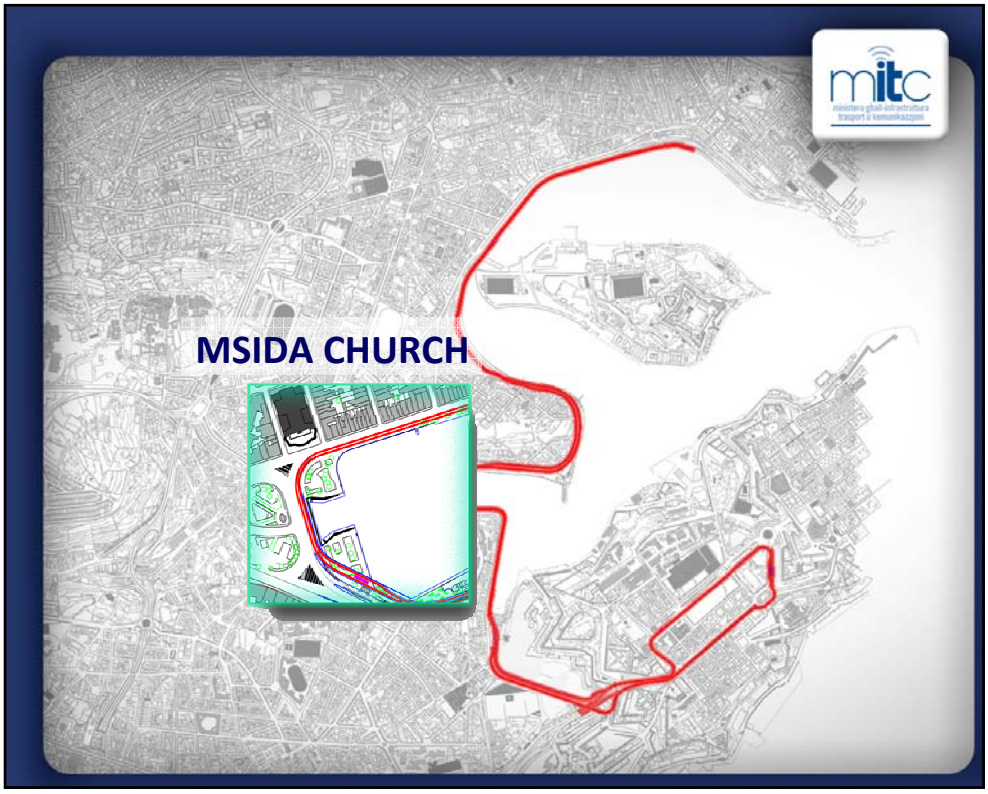

SLIEMA
GZIRA
MANOEL ISLAND
TA' XBIEX
MSIDA
VALLETTA
PIETA`

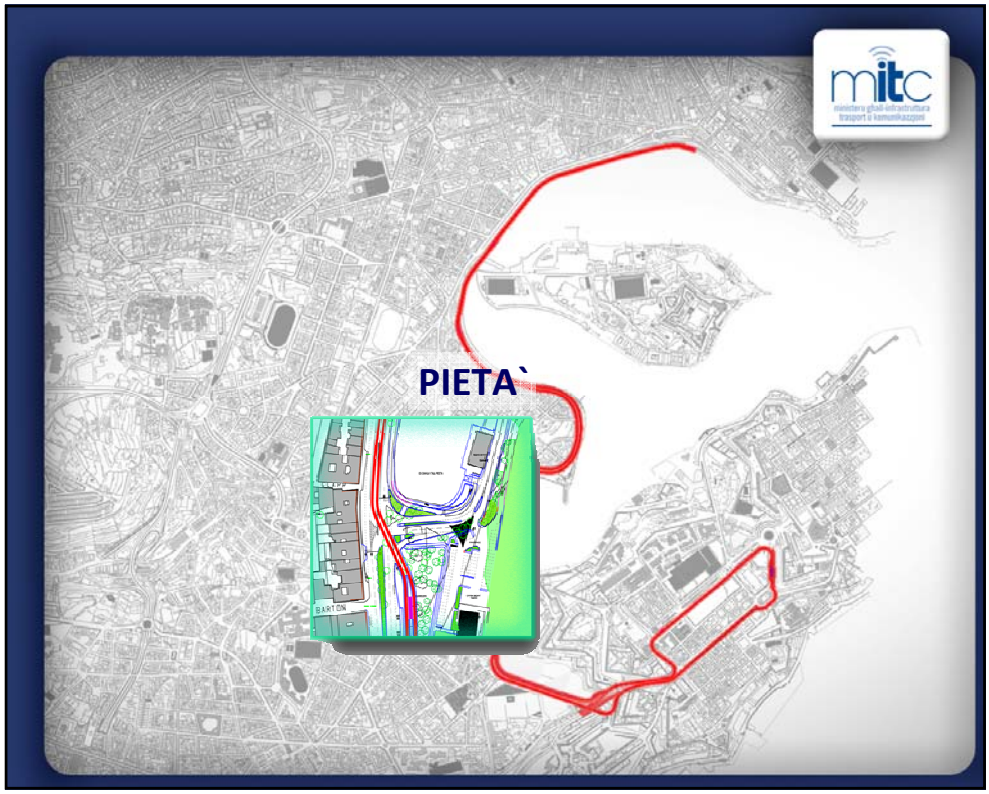

SLIEMA FERRIES


MANOEL ISLAND


TA' XBIEX GARDENS

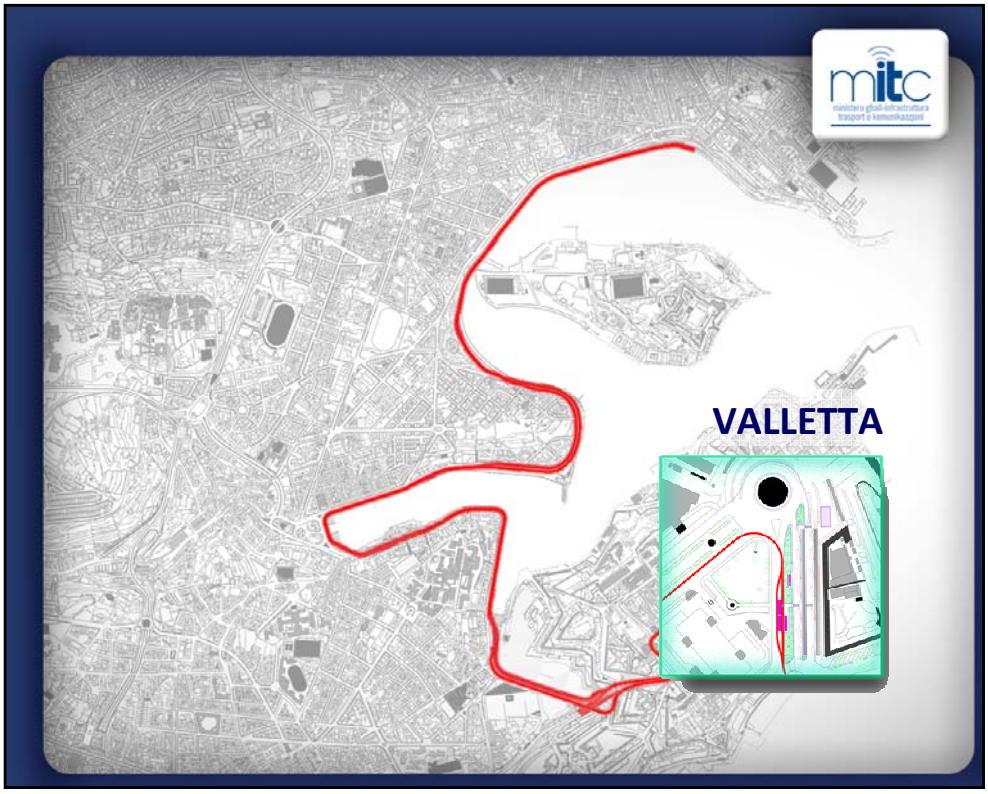

YACHT MARINA, MSIDA


MSIDA CHURCH


PIETA`


PORTES DES BOMBES


THE MALL GARDENS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Valletta – Sliema Route

- Valletta, Floriana, Sa Maison, Msida Creek, Ta'Xbiex, Strand, Sliema Ferry
- route alignment substantially determined
- high passenger volume potential
- Valletta terminus in vicinity of bus station
- largely segregated waterfront alignment
- constrained Triq Marina & Ta'Xbiex sections
  - mixed traffic operation but with tram priority
- importance of Msida Creek & Sliema bus interchanges
- need for enhanced pedestrian crossing facilities for Sliema esplanade


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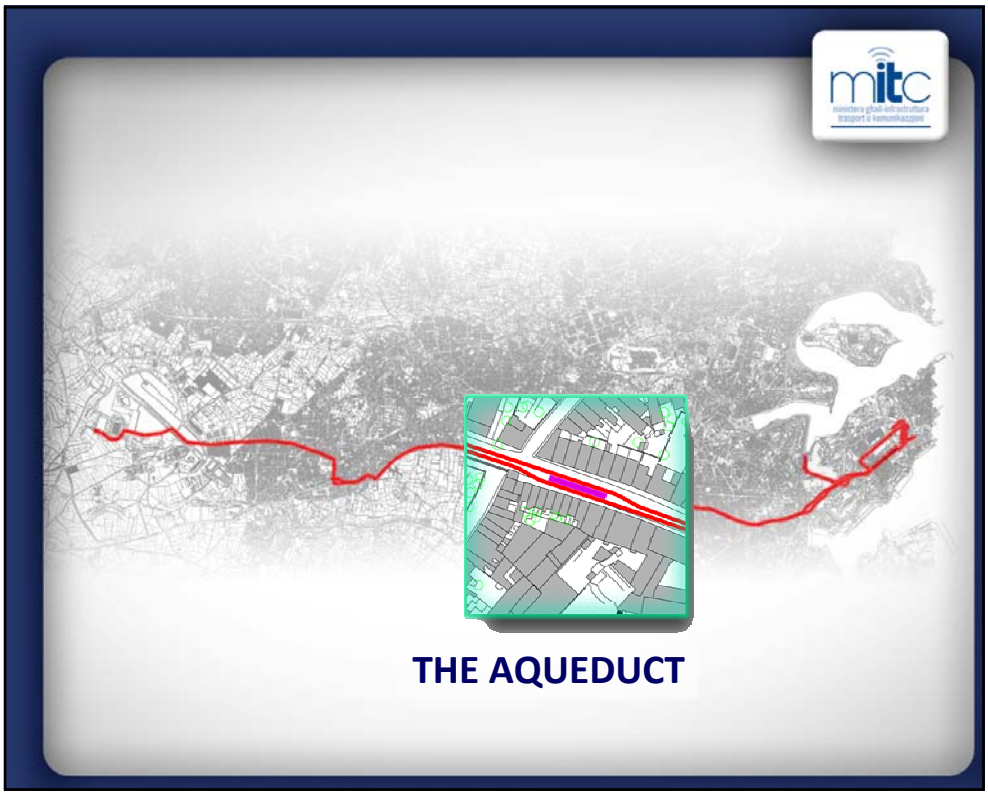
PORTES DES BOMBES


SAN ĠORĠ PRECA MUSEUM


FRA DIEGU SQUARE


KNISJA SAN GEJTANU

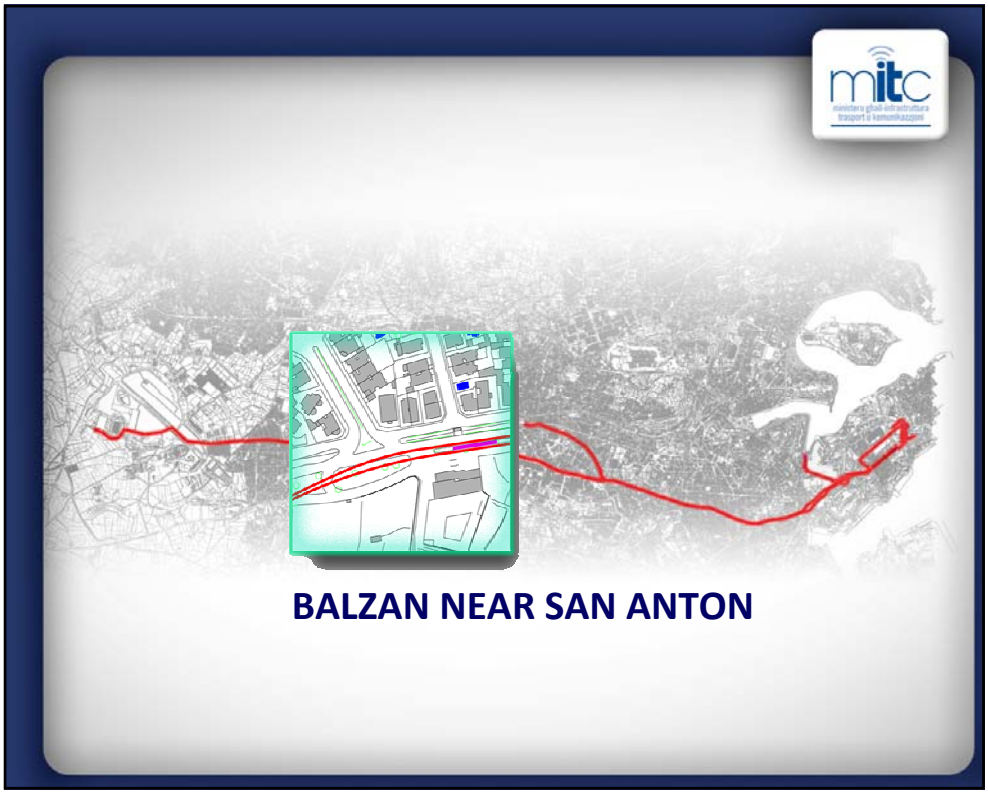

THE AQUEDUCT

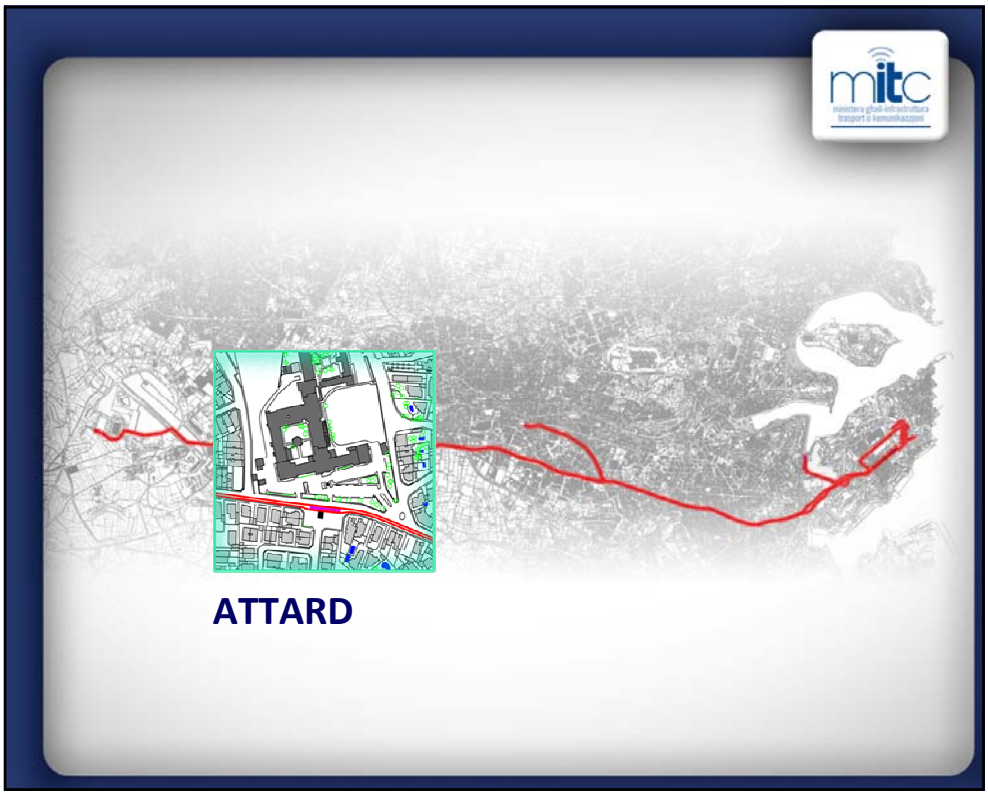

FLEUR-DE-LYS ROUNDABOUT


B'KARA OLD RAILWAY STATION

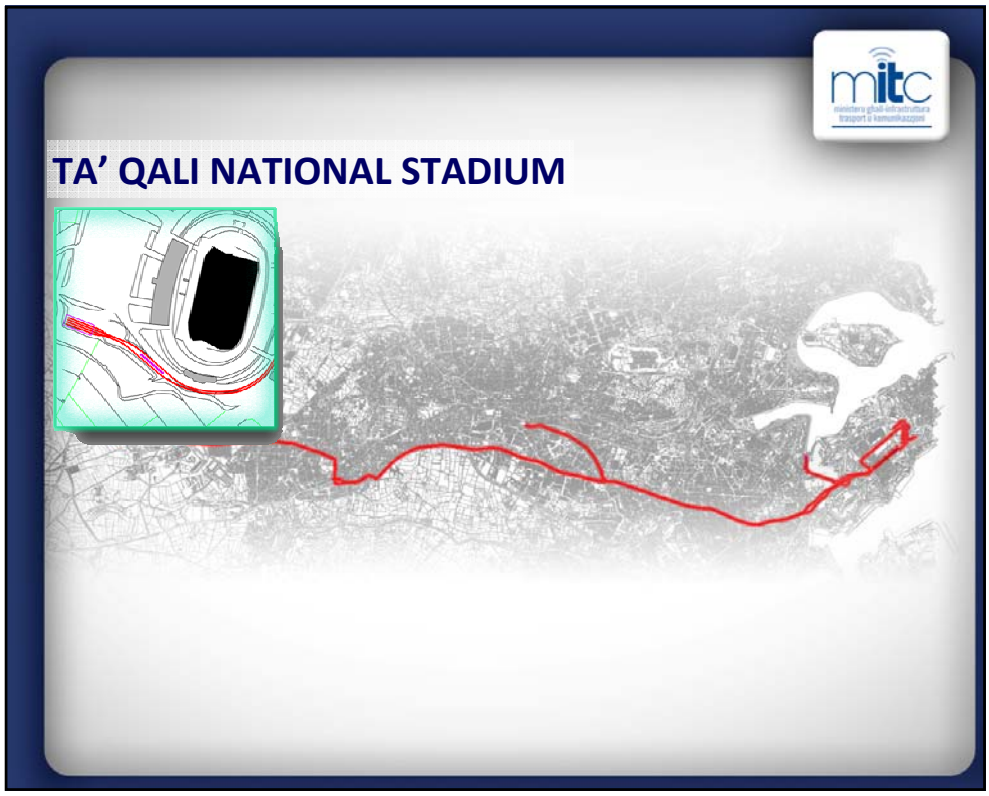

MRIEHEL NEAR MFSA


MRIEHEL


BALZAN NEAR SAN ANTON


ATTARD


TA’ QALI NATIONAL PARK


TA’ QALI NATIONAL STADIUM

Valletta – Birkirkara & Ta' Qali Route

- Valletta, Floriana, Hamrun, Fleur de Lys, Birkirkara, Attard, Ta'Qali
  - precise detail of localised routing still subject to detailed assessment
- potentially good demand corridor:
  - urban regeneration potential
  - encourages modal switch
  - improves public transport access to Ta'Qali National Stadium
- prospect of extensive park & ride facilities and suitable out-of-town depot location at Ta'Qali
- linked with Sliema route to create basis of a network:
  - passenger interchange opportunity
  - operational flexibility
- total route ~ 8.5km

Operations

- service assumptions:
  - operating hours 0600-2400h
  - peaks 0700-0900h and 1630-1830h
  - 10 minute maximum headway on each route
  - 5 minute headway at peak
  - journey times 15 mins Valletta - Sliema
    21 mins Valletta – Ta'Qali
  - 14 trams required to deliver service plus two spares

Capital and Operating Costs

- capital cost estimate:
  - in range €206 - €325 million
  - no significant engineering structures required
  - funding from public sector (EU) or from private sector (PPP)
- annual operating & maintenance cost estimate:
  - in range €7.2 - €7.5 million
  - approximately 50% maintenance, 50% labour & power
  - challenge is extent to which O&M costs can be met from farebox income

Scheme Beneficiaries

- users – faster, fully accessible, more comfortable, more reliable journey
- residents – air quality, property values, access to centres
- operator – farebox income, advertising revenue
- businesses on/near route – footfall due to proximity to tramstops
- businesses at main points served – local economic regeneration from improved access
- national government – transport policy delivery & enhanced visitor perception
- key issue is capturing the value of these benefits within the business case

Challenges in Tramway Development

- business case needs to be made for each route and for the network
  - environmental, economic regeneration, user benefits, policy delivery
- general acceptance of giving public transport priority over the car
  - implementing positive traffic management measures to speed the tram
- balancing maximising patronage by routing through dense urbanisation against service speed from segregated but less accessible routing
- design of on-street running sections requires significant trade-offs to be made in available road space along the route
  - ensuring adequate facilities for parking & loading
  - providing access to properties
- community acceptance of routing through consultation and debate
- planning complementary changes to bus services
- community understanding of extent of disruption during construction

Staged Development Programme

- develop proposals through staged feasibility studies: “building blocks”
  - avoid potentially abortive expenditure in system development
  - caters for scenario of the proposals failing to obtain ongoing support through:
    - lack of political policy imperative
    - community opposition
- first tasks:
  - detailed patronage & revenue study
  - start building the business case
  - full topographic survey of routes
  - “prove” routes technically by preliminary alignment design using firm design criteria
  - frontager survey of parking, loading & access needs
- realistic timescale for planning, authorisation, funding and construction ~ 10 years

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