Road maintenance on Fraser Island: Challenges

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Council Involvement on Fraser Island

- Limited generally to township areas north of Yidney Rocks.
- Roads maintenance and public amenities.
- Waste management.
- S.E.S support (Happy Valley & Orchid Beach).
- Community support (grants assistance).
- Previously all functions undertaken by separate sections of Council. Recent restructure to only 3 directorates has brought most functions under one area, the City Assets Directorate.

Financial Commitment to F.I.

- Previously
  - Roads budget $40K per yr.
  - Waste $20K per yr.
  - Orchid Beach Airstrip maintenance $5K.

- This year (04/05)
  - Roads budget increased to $70K.
  - Waste commitment $64K.
  - Happy Valley amenities block upgrade $15K.
  - Airstrip maintenance $5K.
  - Possible works to assist N.P.W.S.

Hervey Bay City Council's Responsibilities

- Orchid Beach Timber Palleted Roads
- Cathedral Beach Access ramp
- Happy Valley Drive and Access ramp

Fraser Island's Yearly Roads Budget – H.B.C.C.

- $70,000
  - Materials - 30% ($21,000)
  - Labour and Accommodation - 40% ($28,000)
  - Plant and Machinery – 10% ($ 7,000)
  - Cartage fees – 10% ($ 7,000)
  - Safety Issues – 10% ($ 7,000)

Scheduled Visits

- Two visits per year in the past. Likely 4 visits this year.
  - Seven day visits
  - Usually before holiday periods
  - One before Easter
  - One before Christmas

Orchid Beach

- 3.8km of Timber Palleted Roadwork
- Sleepers - 2.4m long, 200mm x 50mm
- Bearers - 2.4m long, 200mm x 50mm
- Approximately 30,000 sleepers
- Approximately 15.2km bearers
- Average age of sleepers & bearers - 15 years
- All timbers CCA treated hardwood
- Challenges
  - Rapid deterioration of sleepers
  - Increasing traffic volume
  - Termite attack
  - Limited budget
  - Transportation costs
  - Removal of damaged sleepers
- Treatments
  - Remove and replace damaged sleepers
    - Advantages
      - Quicker process
      - One crew removes damaged sleepers
      - One crew replaces damaged sleepers
      - Can work easily under traffic
      - Less machinery required
    - Disadvantages
      - Staggered worksites
      - Double up on tools
      - Two sets of roadwork signs

Cathedral Beach

- Existing ramp is 50m long and 5.4m wide
- Built on a max. slope of 32%
- Built by the contractors who constructed Cathedral Beach Resort approximately 15 years ago
- Untreated timber used in its construction
- Sleepers and bearers 200 x 75mm
- Kerb Timbers 200 x 50mm

- Advantages
  - Better than a sand track

- Ramp was built in one section and is hard to perform maintenance on
- Have to remove kerb timbers to perform maintenance
- Untreated timbers subject to termite attack
- Working under traffic
- Only access to Cathedral Beach

  - Proposal
    - Replace ramp in treated hardwood, expected life 20 yrs.

  - Challenge
    - Replace existing ramp and still provide access to the Cathedral Beach Resort

Happy Valley Drive
- Access Track is 240m long and 7m wide
- Problems
  - Badly rutted sand track
  - 600mm deep in dry periods
  - Vehicles continually bogged
  - Becomes a water channel during heavy rains
  - Complaints from residents, Resort owners and general public

- Conducted two trial sections
  - 1st Trial – Enviropave – Besser Masonary product
  - 400 x 300 x 100 concrete paver using interlocking mats
  - 2nd Trial – Ecocell - Geofabric Product
  - 200mm honeycomb plastic cell filled with sand

- Enviropave
  - Advantages
    - Carry heavy vehicle loading
    - Interlocking mats hold pavers in one section
    - Very little rutting when covered with sand
    - Not effected by stormwater runoff

  - Disadvantages
    - Weight of pavers
    - Transportation costs
    - Excavation and setup
    - Availability of machinery
    - Working under traffic
    - Location of pallets
- Overall an excellent product but is slow to lay and has high transportation cost to

Fraser Island

- Ecocell
  - Advantages
    - Light weight
    - Easily transported
    - Carry's heavy vehicle loading
    - Quick and easy to install
    - Retains infill material so little rutting
    - Provides a free draining system
  - Disadvantages
    - Excavation and bed setup
    - Working under traffic
    - Stormwater runoff exposes the cell

- Access Ramp is 150m long and 4.8m wide
  - Problems
    - Continually repairs required because of stormwater washout
    - Old diversion stormwater channel was filled in when a new holiday complex was built at the top of the ramp
    - Can't close the ramp down for emergency repairs as it's the only access from the beach for tour buses

- 1st Solution (designed by others)
  - Large subsoil drain
  - Diagonally placed boards
  - Sand replaced in
- Results
  - Next heavy rain washed ramp out again except for the subsoil drain section
  - One third of existing ramp destroyed
  - 100 sleepers destroyed

- 2nd Solution
  - Remove damaged pallets and repair
  - Excavated sand out from damaged sections, reshaped with one way crossfall and installed geofabric
  - Installed 300mm deep Ecocell and backfilled with sand
  - Wrapped geofabric over cell and replaced repaired pallets
  - New subsoil drain installed to catch water run off
  - Recover pallets with sand

- Recut open channel
- Installed grass roots
- Ramp extended by 25m

- Woy Boy installed (old conveyor belt)
- Results
  - Ramp has performed beyond expectations
  - Residents and public very happy with works
  - Woy Boy to be extended with more to be installed

Conclusion

- Future Possibilities
  - GATT (Graded Aggregate Total Treatment)
  - Watering system for dry periods
  - Budget increase
  - Maintenance agreement with Island bobcat contractor to monitor tracks and ramps
  - Agreement with local tradesmen to perform emergency safety maintenance