Gateway National Recreation Area – The Sandy Hook ITS Project

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Sandy Hook

Location – 16 Miles due South of Manhattan

Sandy Hook Traffic Situation

- Among top ten most visited national parks
- 17,000 vehicles on peak weekend days
- 4,100 parking spaces

- When parking lots fill, traffic backs up for miles onto New Jersey Route 36

Route 36 Corridor

- NJ 36 is the primary route linking Garden State Parkway with the Sandy Hook Unit of Gateway National Recreation Area
- NJ 36 corridor is the focus of a regional traffic congestion management plan

Route 36 Corridor Management Plan

- Coordinates response to traffic congestion among 13 agencies, including the National Park Service
- Calls for Traffic Information System for Sandy Hook, comprised of:
  - Parking Management System (PMS)
  - Portable Message Signs
  - Highway Advisory Radio

Condition Red
Park Full

Condition Yellow
30 min. until Park Full

Condition Green
Park Open

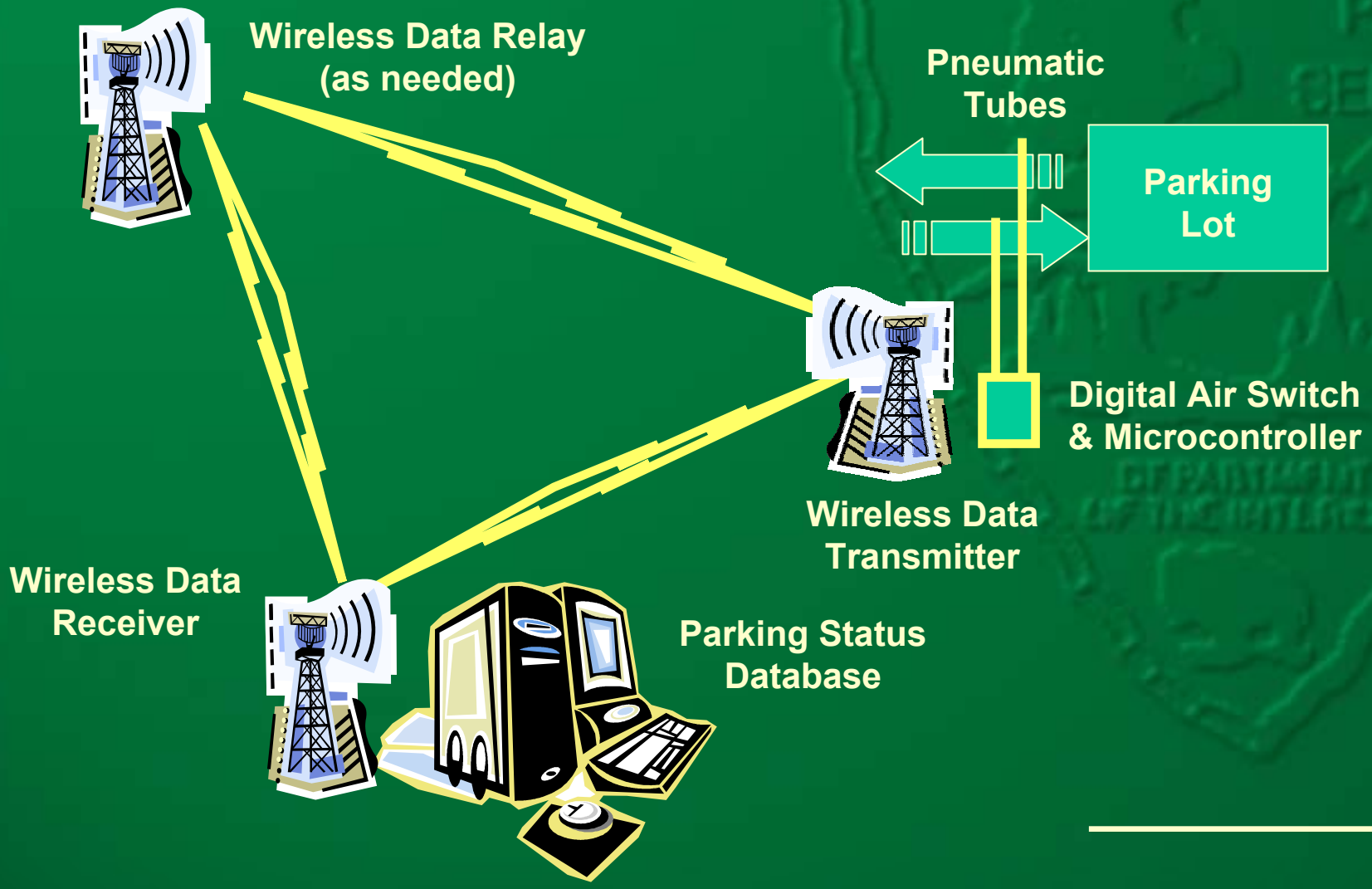
Parking Management Strategy

- Monitor nine beach parking areas so that:
  - Visitors can be directed to available parking
  - When parking areas are nearly full, a “traffic alert” can be triggered; and travel alternatives encouraged
  - When parking areas are full, access to the park can be restricted

PMS Design Challenge

- Provide “up to the minute” parking data to permit park staff to:
  - alert neighboring agencies and travelers a half an hour in advance of when beach parking areas will be full
  - collect beach parking usage data for planning purposes
- Have minimal environmental and visual impacts
- Be deployable within 90 days, for about $5,000 / lot, in locations without electrical power and communications infrastructure

Sandy Hook PMS Concept

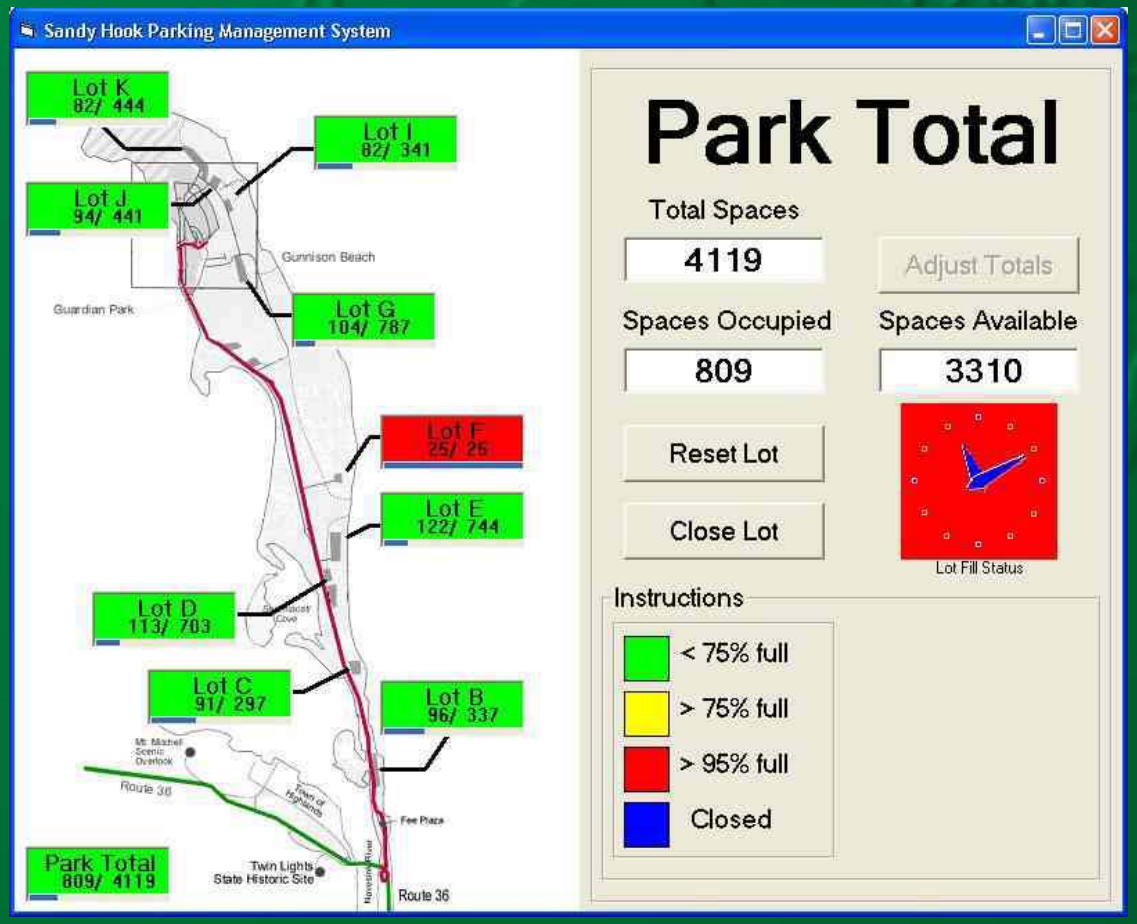


PMS – “Field” Elements

- Pneumatic tube and digital air switch
- Battery powered RF wireless sensor data communications
- Microcontroller for data buffering and power monitoring

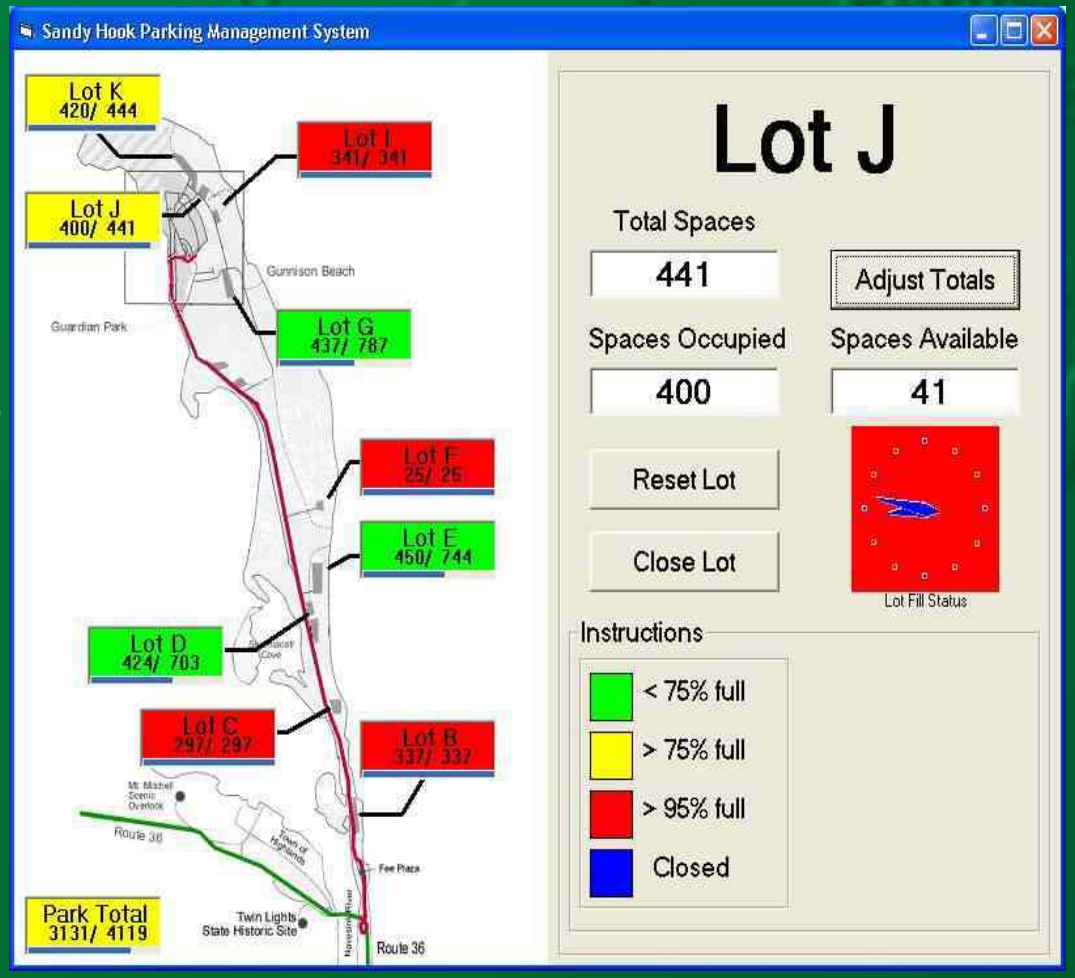
PMS – Base Station Elements

- Wireless data receiver
- Microcomputer and database
- Map-based user interface



PMS Software Features

- Green, Yellow and Red parking status indicators
- “Time when full” clock
- Parking lot status can be reset “on the fly”
- Parking lot count adjusts automatically when lots are closed or re-opened
- “Battery low” warning



Recommended Enhancements

- Link to traffic counters at park entrance
- Solar or roadside power
- More capable / accurate traffic detectors
- Electronic display at park entrance
- Use of historical data for prediction
- “Parking forecast” for park visitors
- Coverage at Ft. Hancock parking areas