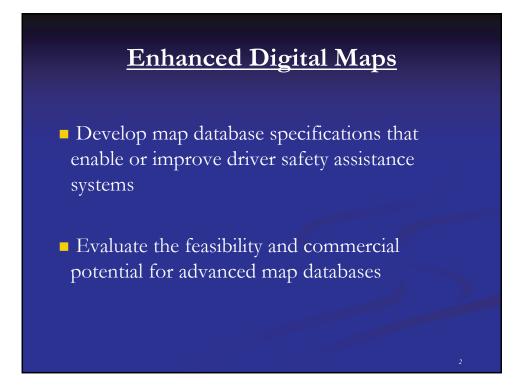
4. 付録 (APPENDEX)

4.2 地図利用走行支援 (Digital Road Map for Advanced Driver Assist Systems) : U.S.A.





Safety Focus

- Map database developers need coordinated input for development of safety focused databases
 - Reliability requirements for safety focused applications are greater than for basic navigation

Determination of EDMap Candidate Applications

- A set of 12 applications having high safety potential was established
- Criteria based on potential safety benefits and estimated market penetration
- The EDMap Applications are either enabled or enhanced by information derived from map database information (mapplets)

Mapplet Requirements

- Near term mapplet requirements are a superset of currently planned map database enhancements.
- Mid term mapplets specify lane level instead of road level geometry and attributes. This is a significant change over the near term database.
- Long term mapplets are similar to that of the mid term, but have higher accuracy constraints.



• Exercise map enabled or enhanced applications with on-road vehicle tests.

• Five applications were demonstrated:

- Lane departure warning
- Forward collision warning
- Stop sign warning&control
- Curve speed warning&control
- Traffic signal warning
- Two levels of map capabilities were demonstrated:
 - RoadLevel Vehicle matched to a road (like today's navigation systems)
 - LaneLevel Vehicle matched to the lane of travel

Demonstration Applications



Jeep Liberty Test Vehicle

Jaguar XKR Test Vehicle

 Traffic Signal Assistant – Warning [LaneLevel]
Lane Following Assistant – Warning [LaneLevel]



 Stop Sign Assistant -Warning [RoadLevel]
Stop Sign Assistant -Control [LaneLevel]

Toyota Sienna Test Vehicle



 Curve Speed Assistant – Warning [RoadLevel]
Curve Speed Assistant – Control [LaneLevel]



 Curve Speed Assistant – Warning [RoadLevel]
Forward Collision Warning [LaneLevel]

Buick LeSabre Test Vehicle

Delivery Mechanisms to Users

- Current technology: On-board systems, map data stored in the vehicle
 - Prevalent system for navigation today
 - Unlikely to be timely enough for many safety applications
- Future technology: Off-board systems, map data stored in a central server, communicated to vehicle
 - Map delivery provides freshness
 - Requires high-bandwidth communications

The Big Picture

- Application and mapplet evaluations led to key optimizations
- Vehicle positioning capability is in the critical path
- The demonstrated EDMap applications provide good basis for the planning and implementation of map enabled safety applications