

# TABLE OF CONTENTS

|  |   |            |   |           |            |   |           |
|--|---|------------|---|-----------|------------|---|-----------|
| <b>EXECUTIVE SUMMARY.....</b>              | <b>i</b>  | 2.2        | Crash Analysis .....  | 13        | 5.11       | Pavement Structure .....                      | 34        |
| Introduction.....                          | i   | 2.2.1      | Analysis .....  | 13        | 5.12       | Utilities.....                                | 34        |
| Purpose and Need.....                      | ii  | 2.2.2      | Conclusions .....   | 13        | 5.13       | Structures .....                              | 37        |
| Design Concept Alternatives .....          | ii  | <b>3.0</b> | <b>AASHTO CONTROLLING DESIGN CRITERIA .....</b>                     | <b>15</b> | <b>6.0</b> | <b>ACCESS MANAGEMENT PLAN.....</b>            | <b>39</b> |
| Access Management Plan.....                | iii   | 3.1        | Summary.....  | 15        | 6.1        | Introduction.....                             | 39        |
| Implementation Plan.....                   | iv  | <b>4.0</b> | <b>DESIGN CONCEPT ALTERNATIVES .....</b>                            | <b>17</b> | 6.2        | Need for Access Management.....               | 39        |
| Estimate of Future Maintenance Costs ..... | iv  | 4.1        | Introduction .....  | 17        | 6.3        | Access Management Plan.....                   | 39        |
| Mitigation Measures.....                   | v   | 4.1.1      | No-Build Alternative .....  | 17        | 6.3.1      | Existing Access Management .....              | 39        |
| <b>TABLE OF CONTENTS.....</b>              | <b>ix</b>   | 4.1.2      | Evaluation Criteria.....  | 17        | 6.3.2      | Access Control.....                           | 39        |
| <b>1.0 INTRODUCTION.....</b>               | <b>1</b>  | 4.2        | Design Concept Alternatives Studied .....                           | 17        | 6.3.5      | Implementation of Access Management .....     | 40        |
| 1.1  | Forward.....  | 4.2.1      | Typical Sections and Intersection Layouts .....                     | 17        | 6.4        | Description of Access Control .....           | 40        |
| 1.2  | Purpose and Need.....   | 4.2.2      | Roadway Improvement Alternatives.....                               | 17        | 6.4.1      | Local Road Intersections .....                | 40        |
| 1.3  | Description of the Project.....   | 4.3        | Evaluation of Alternatives .....                                    | 19        | 6.4.2      | Median Crossovers for U-Turns.....            | 44        |
| 1.3.1                                      | Project Limits .....  | 4.4        | Conclusions .....   | 23        | 6.4.3      | Turnouts.....                                 | 44        |
| 1.3.2                                      | History of the Project Route.....   | 4.4.1      | Discussion .....  | 23        | <b>7.0</b> | <b>ITEMIZED COST ESTIMATES .....</b>          | <b>49</b> |
| 1.3.3                                      | Purpose and Scope of the Project.....   | 4.4.2      | Public Opinion .....  | 24        | 7.1        | Itemized Estimate .....                       | 49        |
| 1.3.4                                      | Joint Project Agreements .....  | 4.4.3      | Summary and Conclusions.....  | 24        | 7.2        | Estimate Summary – Preferred Alternative..... | 50        |
| 1.4  | Project Objectives .....  | <b>5.0</b> | <b>MAJOR DESIGN FEATURES .....</b>                                  | <b>27</b> | 7.3        | Estimate of Future Maintenance Costs .....    | 51        |
| 1.4.1                                      | The Scoping Process .....   | 5.1        | Introduction .....  | 27        | <b>8.0</b> | <b>IMPLEMENTATION PLAN.....</b>               | <b>55</b> |
| 1.4.2                                      | Issues, Concerns, and Opportunities .....   | 5.2        | Design Controls .....   | 27        | 8.1        | Implementation of Proposed Improvements.....  | 55        |
| 1.4.3                                      | Environmental Assessment Public Hearing .....                                     | 5.3        | Horizontal and Vertical Alignments .....                            | 27        | <b>9.0</b> | <b>MITIGATION MEASURES.....</b>               | <b>57</b> |
| 1.5  | Characteristics of the Corridor .....   | 5.4        | Access, Management of Access.....                                   | 27        | 9.1        | Introduction.....                             | 57        |
| <b>2.0 TRAFFIC AND CRASH DATA .....</b>    | <b>9</b>  | 5.5        | Right-of-Way .....  | 27        | 9.2        | Mitigation Measures.....                      | 57        |
| 2.1  | Traffic Analysis.....   | 5.5.1      | Bureau of Land Management (BLM) Concerns .....                      | 29        |            |   |           |
| 2.1.1                                      | Existing Conditions .....   | 5.6        | Coordination With ADOT Aeronautics Group & Airport Development..... | 29        |            |   |           |
| 2.1.2                                      | Traffic Data.....   | 5.7        | Drainage .....  | 30        |            |   |           |
| 2.1.3                                      | Capacity Analysis Methodology .....   | 5.7.1      | Existing Conditions .....   | 30        |            |   |           |
| 2.1.4                                      | LOS Analysis for Year 2007 Traffic Volumes, with No Improvement.....              | 5.7.2      | Existing Culverts and Bridges .....                                 | 30        |            |   |           |
| 2.1.5                                      | Level of Service Analysis for Year 2007 Traffic Volumes with Improvements.....    | 5.7.3      | Hydrology and Hydraulics Methodology .....                          | 31        |            |   |           |
| 2.1.6                                      | Level of Service Analysis for Year 2030 Traffic Volumes with No Improvements..... | 5.7.4      | Drainage Requirements .....   | 31        |            |   |           |
| 2.1.7                                      | Level of Service Analysis for Year 2030 Traffic Volumes with Improvements.....    | 5.7.5      | Drainage Dikes.....   | 31        |            |   |           |
|  |   | 5.8        | Section 404 of the Clean Water Act .....                            | 33        |            |   |           |
|  |   | 5.9        | Maintenance of Traffic During Construction.....                     | 33        |            |   |           |
|  |   | 5.10       | Earthwork .....   | 33        |            |   |           |

*Bradford D. Olbert*  
  
 Expires 12/31/2012

*Roland C. Cook*  
  
 Expires 6/30/2011

**APPENDIX A TYPICAL SECTIONS AND INTERSECTION DETAILS**  
**APPENDIX B CONCEPT PLANS AND PROFILES RECOMMENDED ALTERNATIVE**  
**APPENDIX C DETAILED ESTIMATES – ALTERNATIVES A&B**  
**TYP. SECTIONS AND PLAN/PROFILE SHEETS – ALT. A**  
**TYP. SECTIONS AND PLAN/PROFILE SHEETS – ALT. B**  
**APPENDIX D SUMMARY OF COMMENTS**  
**APPENDIX E EXISTING UTILITY PLANS**  
**APPENDIX F SUMMARY OF UTILITY COMMENTS**  
**APPENDIX G PRELIMINARY AASHTO CONTROLLING DESIGN CRITERIA REPORT**

**LIST OF FIGURES**

|     |  |    |
|-----|--|----|
| 1   | LOCATION MAP                                       | i  |
| 1-1 | LOCATION MAP                                       | 1  |
| 1-2 | VICINITY MAP                                       | 2  |
| 2-1 | NUMBER OF CRASHES BY MILEPOST LOCATION 2001 - 2006 | 13 |
| 2-2 | CRASH RATE BY MILEPOST LOCATION 2001 - 2006        | 13 |
| 5-1 | WATERSHED MAP                                      | 32 |
| 8-1 | IMPLEMENTATION PLAN                                | 56 |

**LIST OF TABLES**

|      |   |     |
|------|---|-----|
| 1    | SUMMARY OF COSTS FOR SR 86                                  | iii |
| 2    | SUMMARY OF COSTS TO PIMA COUNTY FOR LOCAL ROADS             | iii |
| 3    | IMPLEMENTATION PLAN   | iv  |
| 1-1  | LOCATION OF STUDY AREAS                                     | 4   |
| 1-2  | EXISTING RIGHT OF WAY WIDTH                                 | 4   |
| 1-3  | PREVIOUS ROADWAY PROJECTS                                   | 4   |
| 2-1  | SR 86 TRAFFIC VOLUMES BY ROADWAY SECTION AND DESIGN YEAR    | 10  |
| 2-2  | UNSIGNALIZED INTERSECTION LOS CRITERIA                      | 10  |
| 2-3  | SIGNALIZED INTERSECTION LOS CRITERIA                        | 10  |
| 2-4  | SR 86 MAINLINE LOS FOR 2007 WITH NO IMPROVEMENTS            | 10  |
| 2-5  | SR 86 MAINLINE LOS FOR 2007 WITH IMPROVEMENTS               | 10  |
| 2-6  | INTERSECTION LOS – 2007 TRAFFIC WITH & WITHOUT IMPROVEMENTS | 11  |
| 2-7  | SR 86 MAINLINE LOS FOR 2030 WITH NO IMPROVEMENTS            | 11  |
| 2-8  | INTERSECTION LOS – 2030 TRAFFIC WITH & WITHOUT IMPROVEMENTS | 12  |
| 2-9  | SR 86 MAINLINE LOS FOR 2030 WITH IMPROVEMENTS               | 12  |
| 2-10 | CRASH SEVERITY 4/01/01 TO 3/31/06                           | 14  |
| 2-11 | COLLISION MANNER 4/01/01 TO 3/31/06                         | 14  |
| 4-1  | EVALUATION OF ALTERNATIVES                                  | 20  |
| 5-1  | R/W AND DE REQUIRED FOR SR 86                               | 28  |
| 5-2  | R/W REQUIRED FOR LOCAL ROAD CONNECTIONS                     | 28  |
| 5-3  | EXISTING AND PROPOSED DRAINAGE STRUCTURES                   | 29  |
| 5-4  | DRAINAGE CHANNELS   | 31  |
| 5-5  | CORPS OF ENGINEERS JURISDICTIONAL STREAMS AND WASHES        | 33  |
| 5-6  | EARTHWORK SUMMARY   | 33  |
| 7-1  | SUMMARY OF COSTS FOR SR 86                                  | 50  |
| 7-2  | SUMMARY OF COSTS TO PIMA COUNTY FOR LOCAL ROADS             | 50  |
| 7-3  | ESTIMATE OF FUTURE MAINTENANCE COSTS                        | 51  |
| 8-1  | IMPLEMENTATION PLAN   | 55  |