



Implementation Report (Example)

Context

The implementation report is a companion document to the project-specific technology transfer (T2) plan. The project-specific T2 plan is a **guide** to successfully plan and execute activities during the implementation phase of the project; whereas the implementation report is a **report out** of such activities. The implementation report retains the same basic format (and requests similar information) as the project-specific T2 plan.

Instructions

The implementation report shall give a complete description of and developed products from the education, T2, and workforce development activities that were executed during the implementation phase. The aim is to be a **concise** document, simply providing adequate information as to inform Tran-SET of conducted activities, who was involved, and their relative success and impact.

Principal Investigators (PIs) are required to utilize the following template (and provide the requested information) in developing their implementation report. The most up-to-date template will be accessible on Tran-SET's [website](#).

Reports are due the last day of the implementation phase of the project and shall be e-mailed directly to Tran-SET (transet@lsu.edu). **The e-mail must also include implementation-related, developed products** (e.g., presentation slides, webinar recordings/links, workshop materials, etc.).

Contact

Please contact Dr. Husam Sadek (at transet@lsu.edu or 225-578-0131) if you have any questions or would like additional information.

Implementation Report

Step 0. Project Information

Element	Information
Project Title	XXXXX
Project Number	18XXXXX
Principal Investigator(s)	XXXXX
Participating University/Institutions	XXXXX
Report Date	##/##/2019

Step 3. Identify Stakeholder Groups by Name and Role

The stakeholder is the entity who is (or might be) interested in your research project and its outputs. A wide-range of stakeholder types can be involved in Tran-SET's research program. **Stakeholders can be:**

- State DOTs;
- Local Government Entities;
- Non-Profit Organizations;
- Industry Partners; and
- Others: federal governmental agencies, trade associations, research institutions, tribal organizations, professional societies, and student groups.

Please list the key stakeholders that were involved in the implementation activities. Please list specific stakeholders, categorized by stakeholder type (the above categories), and categorized by the following six fundamental categories:

- Sponsors of research and T2;
- Researchers and developers;
- Deployment team;
- Early potential adopters and problem owners;
- Late potential adopters that follow the output's development*; and
- Others: allies and foes, such as trade organizations, regulators, suppliers, etc.

Please include education- and workforce development-related stakeholders. Tran-SET and the project research team are not considered stakeholders.

Please add or delete rows as necessary.

ID	Stakeholder Name	Stakeholder Type	Category(ies)
A	LTRC	Local Government Entities	Early potential adopters
B	Quality Concrete	Industry Partners	Ally
C	LSU Facility Services	Local Government Entities	Ally
D	Related Research Communities (Researchers at National and International Conferences, TRB Committees)	Other (Relater Research Communities)	Research and developers

*Project outputs can be: technologies, guidelines, techniques, approaches, concepts, tools, etc.

If industry has been involved in any of the activities, please **demarcate** the industry stakeholder to distinguish from other stakeholders. For example, utilizing a colored background or superscript (e.g., *Barriere Construction*, *^aHVJ Associates*, etc.). Please do this every time the industry stakeholder is mentioned in the implementation report.

If industry was not involved, please **provide a brief reason below** (e.g., if the project is solely focused on public sector policy, etc.).

Not applicable; an industry provided was involved.

Steps 5/6/7. Organize Communication Tracking for Stakeholder Groups, Develop Engagement Plans, and Identify Resources to Engage all Stakeholders

Please list each activity that occurred during the implementation phase in the following table. Activities include but are not limited to:

- Peer-reviewed publications and presentations;
- Educational and training materials;
- Webinars, short courses, or workshops;
- STEM events;
- Professional society-related events;
- Revised course materials;
- Patents;
- Product demonstration fairs;
- Field testing; and
- Meetings (in-person or online) with potential adopters.

Please include **education- and workforce development-related** activities. Project deliverables to Tran-SET should not be included. Please organize activities by project task, and specify whether they were originally designated in the proposal (or in addition to those activities).

Please add or remove rows as necessary.

ID	Associated Proposal Task	Included in Proposal?	Engagement Activity	Date of Engagement Activity (mm/dd/yyyy)	Stakeholder(s) Involved	Audience (# and Type)	Successful? (give a score 1-10)
A	Phase II: Task 1, Task 2	Yes	Presentations: At TRB, ICPIC, WTC, Tran-SET Conference, and Quality Concrete	TRB (January 2018) ICPIC (April 2018) WTC (June 2018) Tran-SET Conference (April 2018)	Related Research Community	Researchers and Professionals (approx. 100)	7
B	Phase I: Task 7	Yes	Field test: A small-scale field study implementing two cost-effective ECC materials utilizing local ingredients was performed.	October 2018	LSU, LTRC, Quality Concrete	Professionals, General Public (approx. 100)	10
C	Phase II: Task 2	Yes	Internships: For two Native American students from Navajo Technical University, one BRCC student, and two LSU students	July 2017 – Nov 2018	LSU, LTRC	5	8
D	Phase II: Task 2	No	STEM events: Mentoring the ASCE Concrete Canoe Team at LSU for development of ECC-like lightweight concrete.	October 2017 – February 2018	LSU, LTRC	N/A	8
E	Phase II: Task 1	Yes	Peer-reviewed publications: ICPIC Conference Proceedings, TRB Journal Publication (under review)	ICPIC (04/29/2018) TRB (Present)	Related Research Community	Researchers and Professionals (approx. 100)	7

For the most successful and effective engagement activities listed above (select at least two activities): please briefly summarize the event, describe the audience in attendance, the general success of the activity, and what potential impact that activity may have.

Please follow the format and instruction below for each brief summary. Please be concise and limit repetition from the table. Feel free to add pictures. Suggest a maximum of three paragraphs per activity.

ID B – Field Test

A small-scale field study implementing two cost-effective ECC materials utilizing local ingredients was performed. As shown in Figure 1a and b, two ECC sidewalk sections were constructed at LSU campus on an area close to trees (where regular concrete typically breaks promptly due to tree roots growth). Each sidewalk section was constructed with a different type of ECC. Section one was built with a high strength moderate ductility ECC while section two was constructed using a high ductility moderate strength ECC. Furthermore, three small repairs of cracked sidewalks were performed as shown in Figure 1c.



Figure 1: ECC Field Study (a) ECC Sidewalk Construction (b) Finalized ECC Sidewalk (c) Repair of Cracked Sidewalk Using ECC.

Success: The implementation of developed cost-effective ECC materials utilizing local ingredients was successful since it attracted the LSU Facility Services, LTRC and the local contractor to be part of the field test. Involved professionals were excited and supportive.

Expected Impact: Novel cost-effective ECC materials developed were utilized to repair and build infrastructure at LSU campus. Moreover, awareness of novel ECC materials was generated through local news reports (WBRZ) and a newspaper article (The Daily Reveille) about the implementation project.

ID C – Internships

Internships were offered to two Native American students from Navajo Technical University, one BRCC student, and two LSU students. Students were introduced to the theory behind ECC design as well as the possible applications of these novel materials in the future transportation infrastructure. Furthermore, the students acquired hands on experience in the laboratory by producing and testing ECC according to applicable ASTM Standards.

Success: This research project allowed to recruit and train future leaders in the transportation sector.

Expected Impact: Workforce development



Figure 2: Students Working in the Lab and Learning about ECC Materials.

ID D – STEM Events

The LSU ASCE Concrete Canoe Team was helped by our research group to develop lightweight ECC-like concrete. Students were introduced to the theory behind ECC design. Moreover, the students acquired hands on experience in the laboratory by producing and testing ECC according to applicable ASTM Standards.

Success: A lightweight ECC-like material was successfully developed and implemented to construct the LSU Concrete Canoe.

Expected Impact: Workforce development.



Figure 3: ASCE Concrete Canoe Competition (a) Students Manufacturing the Concrete Canoe with Lightweight Cost-Effective ECC-like Material (b) Finalized Concrete Canoe

At the end of this section, if applicable, please identify activities that were listed in the proposal but were not conducted; and explain why such activities were not conducted.

Not applicable.

Step 8. Identify and Address Barriers to Adoption

Please identify stakeholder barriers related to adopting research outputs/products that occurred during the implementation phase. Please add or remove rows as necessary.

ID	Stakeholder Name	Barriers to Output Adoption	Potential (or Actual) Actions to Address the Barriers
A	LTRC	Further research will be required to determine a robust design method for ECC in transportation infrastructure. Moreover, field verification will be required before full technology adoption.	Conduct the necessary research
B	Quality Concrete	Further research will be required to determine a robust design method for ECC in transportation infrastructure. Moreover, field verification will be required before full technology adoption.	Conduct the necessary research

Step 9. Establish an MOU between Early Adopter and Research Sponsor

After the implementation phase is completed, Tran-SET’s Research and T2 Program Coordinator with assistance from Tran-SET’s Program Manager and Associate Directors will informally and formally assess the effectiveness of engagement activities that occurred during the respective project cycle. This assessment will include identifying products/output suitable for further studies via MOUs with established stakeholders.

In regard to T2, MOUs are typically entered into with early adopters to collect data on the output’s performance in the working environment when it is implemented. Please provide any information that may inform and be useful for Tran-SET in deciding to pursue MOUs related to the developed products/output. For example:

- Would the products/output benefit from an MOU with an established stakeholder? Are the products/output at the state where stakeholders can provide insightful feedback or provide supplemental performance data?
- What would the MOU look like? Who would be the stakeholder and what would their role and contributions be?

It is OK if the products/output are not in an appropriate state or form to pursue MOUs; but if so, please state so with a brief reason why.

Based on research findings a MOU might be pursued with LTRC and/or Quality Concrete for further development of ECC materials and implementation.