

# ei-Road/Rail

Total Solution for Alignment Optimization



## Outline

This optimum design system is optimization system that optimizes alignment according to client's various input constraints(environment, design codes, economics, requirements of stakeholders, client's intentions, etc..) using state-of-the-art IT technologies such as GIS analysis, expert system, Genetic Algorithm.

## Motivation of development

As one part of "New construction technology innovation" R&D, ei-Road was joint-developed by Korea Highway Corporation from 2005 to 2011 mutually funded by MOTC of Korea. In 2012 ei-Road was announced for commercial use.

## Benefits

If used by private sector: ei-Road can reduce construction cost for feasibility study by 5~30%.

If used by private sector for overseas: Not to mention the cost reduction, by improved quality of design can achieve reliability of Client.

If used by public sector : Reduction of project budget / Improved functionality of planning / Enabling active project management

## Applicable field of business

For overseas project(Private capitalized or design build project), savings of design cost as well as construction cost due to the optimization. Alternative proposals are available.

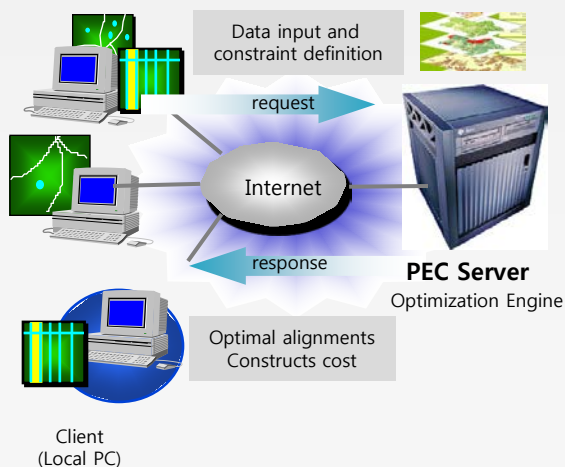
Especially for privately capitalized project ei-Road generated optimum alignment can significantly reduce private sector's construction cost as well as client's project budget.

Client and auditing party case assess construction cost during or after design stage to cut cost or to prevent extravagant design.

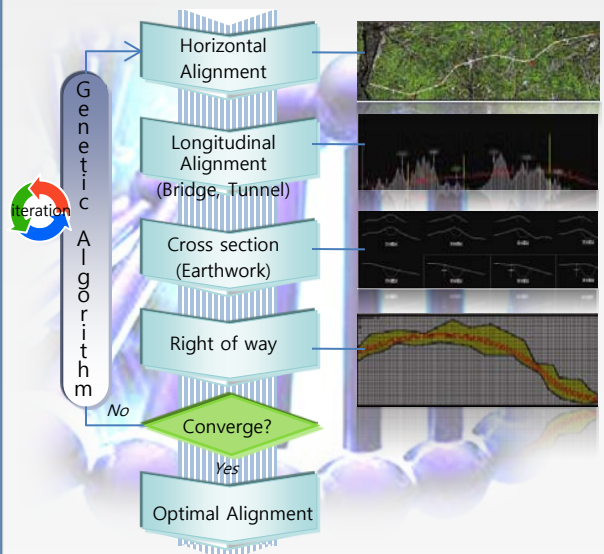
For mid or long-term planning to improve national road networks or provincial road network, accurate and most economic construction cost can be estimated in the feasibility study-level of detail.

In case of having difficulties in getting digital map especially for restricted country to access ei-Road is best tool to estimate required budget for infra building.

### How we work?



### Flow Diagram of Optimization





## Company intro

PEC is developing and delivering computer software which can be used in engineering and construction process such as highway , railroad design as well as GIS and 3D simulation. Especially we are specialized in developing AutoCAD 3rd party solution.

We have highly skilled personnel in the field of engineering s/w development and have close links with various specialists for cooperation to be able to develop solutions which is effectively used by various customers.

RD\_SmartPro(Highway and Railroad design s/w) we delivered this year is integrated 3D S/W which can be used very easily just by mouse click in concept design as well as detailed design process. It's really user-friendly S/W easy to use and easy to learn.

We also developed ei-Road which can optimize highway and railroad alignment using Genetic Algorithm and GIS analysis. Simply providing beginning ,ending point and obstacles such as existing roads, rivers , ei-Road can optimize alignment within 2-3 days.

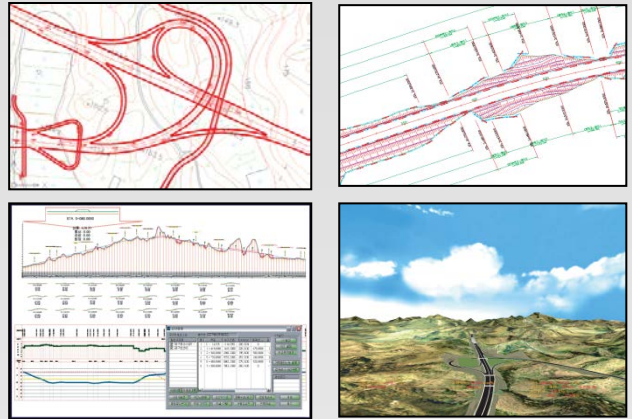


## Our Products

- ◆ ei-Road/Rail(alignment optimization s/w using genetic algorithm)
- ◆ RD\_SmartPro Road/Rail(design s/w running on AutoCAD)
- ◆ gnrLAND(land parcel area calculation within right of way)
- ◆ 3D Simulation
- ◆ gnrROAD (concurrent design s/w of Road/Railroad)
- ◆ gnrMASS(secondary hauling optimization s/w)

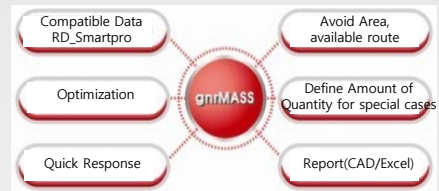
## RD\_SmartPro

Since we released our first product RD2000 in 2000 and RD2005 in 2005, we upgraded RD significantly satisfying our numerous user requirement. RD\_SmartPro can be used in the fields such as road/railroad design, survey, site design as well as 3D simulation.



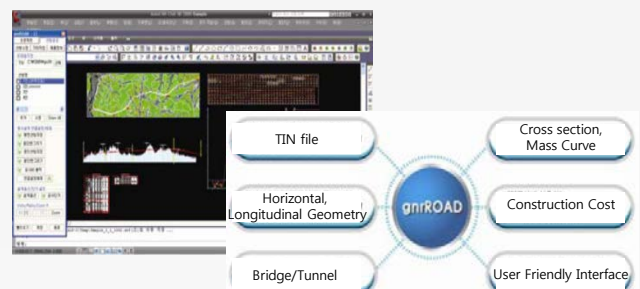
## gnrMass

gnrMass is the S/W which optimize secondary hauling



## gnrRoad

The most important characteristics of gnrRoad Simultaneously check out horizontal, longitudinal alignment, construction cost, mass curve to consequence of geometry modification.





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